

**Factors Affecting E-commerce Adoption Among SMEs.
A Case Study Investigation of a Developing Economy –
Pakistan**

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Abstract

The main objective of this study is to increase the knowledge base on the factors affecting adoption of e-commerce in small and medium-sized enterprises (SMEs). As such the study evaluates and extends the Technology-Organisation-Environment (TOE) framework developed by Tornatzky and Fleischer (1990) by adding an individual context. A qualitative interpretative research approach is adopted with the case study as the research plan, and the philosophical approach adopted is predominantly epistemology and methodology.

The context within which this study is set is SMEs within the developing economy of Pakistan. Eight case studies were chosen with three participants from each; giving a total of 24 participants. At the time of data collection, all participants were either owner-manager/chief executive officers or managers within departments. Qualitative data were collected by applying data triangulation techniques including face-to-face and telephone interviews, direct observation, documentary evidence and website content. Data were then analysed using thematic techniques.

Using the extant literature and the data collected in this study (particularly in relation to the extended individual context), it is found that the following factors in particular influence the adoption (or not) of e-commerce within the participating Pakistani SMEs: (i) availability and quality of the latest ICT infrastructure units, (ii) national online readiness, (iii) internet speed, (iv) online payment security and data privacy mechanism, (v) power outages, (vi) organisational size and structure, (vii) website availability and ease of payment facility, (viii) inadequate financial and ICT skilled expertise (HR), (ix) traditional business selling methods, (x) consumer preference for cash on-delivery payments, (xi) lack of consumer confidence in e-commerce, (xii) technological awareness and education in society, (xiii) lack of government and local business institutes' support and (xiv) owner-managers and senior management characteristics.

This study contributes to the knowledge base for better understanding the adoption factors of e-commerce and supports the use of the extended TOE model. The qualitative results are useful not only for SMEs themselves, but also for policymakers, governments and local business institutes, and future researchers. In terms of the limitations of the study, the study is limited as it concerns only SMEs in three cities in Pakistan (Islamabad, Lahore and Karachi). Other qualitative and quantitative studies could include SMEs from different rural areas of Pakistan. In addition, it would be interesting to compare the results with those of other developing economies in the Southeast region.

Keywords: SMEs, E-commerce, TOE adoption factors, Pakistan, Developing Economies.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

In the name of Allah, the Most Gracious, the Most Merciful

اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ - خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ - اقْرَأْ وَرَبُّكَ الْأَكْرَمُ -
الَّذِي عَلَّمَ بِالْقَلَمِ - عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ

“Read! In the Name of your Lord, Who has created (all that exists), Has created man from a clot. Read! And your Lord is the Most Generous, Who has taught (the writing) by the pen. Has taught man that which he knew not,” [Al-‘Alaq 96: 1-5].

Dedications

To the Almighty God

I would like to dedicate this thesis to Almighty God, thanks for the guidance and everything in my life. Without the guidance of Allah, I could never get anything from my life.

To My Father and Mother

This thesis is totally dedicated to my dear parents, who have been my source of inspiration throughout my four-year career and who gave me strength when I thought about giving up during the study, and provided me with moral, spiritual and emotional and financial support. Without their generous support and prayers, I could not finish this study on time.

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Table of Contents

Dedications	iii
Acknowledgements	iv
Declaration	v
List of Figures	xiii
List of Tables	xv
List of Abbreviations	xvi
Chapter 1: Introduction	1
1.0 Research Introduction	1
1.1 Research Background and Significance	3
1.2 Research Rationale	7
1.3 Research Questions and Objectives.....	9
1.4 Research Context.....	10
1.4.1 Pakistan's Economy and SMEs	10
1.5 Structure of the Thesis	13
Chapter 2: Context of the Research	17
2.0 Introduction	17
2.1 Internet Backdrop.....	17
2.1.1 Background of the Internet.....	17
2.1.2 Usage of the Internet	19
2.1.3 Internet in Developed Economies	20
2.1.4 Internet in Developing Economies.....	21
2.1.5 Internet in Pakistan	23

2.2 Background to E-commerce	26
2.2.1 The Definition of E-commerce.....	27
2.2.2 History of E-commerce	28
2.3 E-commerce Transaction Models	31
2.3.1 B2B E-commerce.....	32
2.3.2 B2C E-commerce	33
2.4 Growth of E-commerce in Developed Economies.....	35
2.5 Growth of E-commerce in Developing Economies.....	36
2.6 E-commerce Revolution in Asia and the Pacific	39
2.7 Growth of E-commerce in Pakistan (Southeast Asian Economy).....	41
2.8 E-commerce Barriers and Challenges	44
2.9 Summary.....	45
Chapter 3: SMEs' E-commerce Adoption.....	46
3.0 Introduction	46
3.1 The Concept of an SME	46
3.2 SMEs' Economic Contributions	49
3.3 SMEs' Role in Pakistan	53
3.4 Leveraging the Benefits of E-commerce to SMEs.....	55
3.5 Summary.....	57
Chapter 4: Literature Review: E-commerce in SMEs	58
4.0 Introduction	58
4.1 E-readiness for E-commerce Adoption in SMEs	58
4.2 SMEs' E-commerce Adoption Resources.....	60
4.3 Leadership Role in SMEs' E-commerce Adoption	61

4.4 E-commerce Adoption Factors Affecting SMEs	62
4.5 Government's Role in the Adoption of E-commerce by SMEs	65
4.6 Literature Gaps SMEs Adoption of E-commerce (Development of the Conceptual Framework).....	66
4.7 Summary.....	68
Chapter 5: Literature Review: Theories Associated with SMEs' E-commerce Adoption	69
5.0 Introduction	69
5.1 Theories of E-commerce Adoption	69
5.2 Resource Based Theory.....	70
5.3 Perceived E-Readiness Model	72
5.4 Technological-Organisational-Environmental Framework.....	75
5.4.1 Technological Contextual Factors	81
5.4.2 Organisational Contextual Factors	84
5.4.3 Environmental Contextual Factors	87
5.4.4 Extended Individual Contextual Factors	90
5.5 Summary.....	94
Chapter 6: Research Philosophies and Methodologies	96
6.0 Introduction	96
6.1 Research Philosophies.....	97
6.1.1 Ontological Philosophical Assumption.....	98
6.1.2 Epistemological Philosophical Assumption	99
6.1.3 Axiological Philosophical Assumption	100
6.1.4 Methodological Philosophical Assumption	101
6.2 Research Paradigms.....	102

6.2.1 Positivism Paradigm	102
6.2.2 Interpretivism Paradigm	103
6.3 Research Types	106
6.3.1 Descriptive Studies	106
6.3.2 Explanatory Studies	107
6.3.3 Exploratory Studies	107
6.3.4 Deductive and Inductive Studies	108
6.4 Research Methodological Approaches	110
6.4.1 Quantitative Research Approach	110
6.4.2 Qualitative Research Approach	111
6.5 Research Strategy	113
6.5.1 Case Study Research Strategy	113
6.5.2 Single or Multiple Case Studies	115
6.5.3 Unit of Analysis	116
6.5.4 Selection of the Participants	118
6.6 Research Time Horizon	120
6.7 Data Collection and Analysis Procedures	120
6.7.1 Research Instrument	120
6.7.2 Questionnaire Design	120
6.7.3 Pilot Study	121
6.7.4 Data Collection Tools	124
6.7.5 Data Analysis Procedures	132
6.8 Research Reliability and Validity	140
6.8.1 Research Validity	140

6.8.2 Research Reliability	141
6.9 Ethical Considerations.....	142
6.10 Summary.....	143
Chapter 7: Data Presentation and Analysis	144
7.1 Introduction	144
7.2 Data Analysis	144
7.3 Respondent Information	145
7.4 Overall Characteristics and Situation.....	145
7.4.1 Company Profile	146
7.5 Usage of ICT Infrastructure Units	151
7.5.1 Characteristics of ICT Units	151
7.5.2 Availability and Quality of Internet Connection	156
7.6 The Role of Owner-managers	159
7.6.1 Personal Entrepreneurial Characteristics	160
7.7 Factors Affecting E-commerce Adoption	164
7.7.1 Technological Contextual Factors	166
7.7.2 Organisational Contextual Factors	179
7.7.3 Environmental Contextual Factors	194
7.7.4 Extended Individual Contextual Factors	206
7.8 Role of Government	215
7.8.1 GOP Support for E-commerce Adoption	215
7.9 Support of Local Business Institutes.....	221
7.9.1 Institutional Assistance for the SMEs' E-commerce Adoption	221
7.10 Summary.....	225

Chapter 8: Findings and Discussions	226
8.0 Introduction	226
8.1 Overall Characteristics and Situation of SMEs	226
8.2 Usage of ICT Infrastructure Units	232
8.3 The Role of Owner-managers	236
8.4 Factors Affecting E-commerce Adoption	238
8.4.1 Technological Contextual Factors	238
8.4.2 Organisational Contextual Factors	243
8.4.3 Environmental Contextual Factors	245
8.4.4 Extended Individual Contextual Factors	253
8.5 Role of Government	256
8.6 Support of Local Business Institutes.....	257
8.7 Revisited Conceptual Framework/Model Used in This Study.....	258
8.8 Summary.....	259
Chapter 9: Conclusions.....	261
9.0 Introduction	261
9.1 Conclusions.....	261
9.2 Research Contributions	267
9.2.1 Theoretical Contributions	269
9.2.2 Methodological Contributions	273
9.3 Practical Implications.....	274
9.4 Limitations, Direction of Future Research and Strategies to Develop E-commerce	276
9.4.1 Limitations and Direction of Future Research.....	277
9.4.2 Strategies to Develop E-commerce Adoption.....	278

References	280
Appendix A: Literature Review on E-Commerce Adoption Factors in Developing Economies	327
Appendix B: Literature Review of TOE Factor Results in SMEs in Different Economies	330
Appendix C: Interview Protocol and Guide.....	334
Appendix D: Request to Participate in the Survey	339
Appendix E: Participant Information Sheet	341
Appendix F: Informed Consent Form	343
Appendix G: Teesside University Ethical Clearance Letter	344

List of Figures

Figure 1: Summary of the Content of this Thesis	16
Figure 2: European Population Ratio of Internet Users	21
Figure 3: Top 10 Developing and Developed Economies by the Total Number of Internet Users in 2015 and Growth Rate of Multiple Users, 2012-2015	23
Figure 4: Traditional Commerce Selling Chain	29
Figure 5: E-commerce Selling Chain	30
Figure 6: Retail Sales by E-commerce Worldwide from 2014 to 2021 (in USD billions)	31
Figure 7: E-commerce Transaction Taxonomy	32
Figure 8: B2B E-commerce Model	33
Figure 9: B2C E-commerce Model	34
Figure 10: Retail E-commerce Sales as a share of Retail Trade in Selected Countries from 2014 to 2017	36
Figure 11: Online Sales as a Percentage of Total Retail Sales in Selected Countries in 2017	37
Figure 12: Top 10 Economies by Total, B2B and B2C E-commerce, 2015	37
Figure 13: Size of B2C E-commerce by Region (in USD billions)	39
Figure 14: Cash on Delivery Transactions - Some Asian Economies (% of Total Online Transactions)	43
Figure 15: Role of SMEs in Developed Economies	52
Figure 16: Provincial Share in the SME Sector	54
Figure 17: State of Readiness of the Network of Developing Economies and Less Developed Economies in Asia	60
Figure 18: Categories of Literature/issues Adoption of E-commerce by SMEs (A Conceptual Framework)	67
Figure 19: Resource-Based Theory View	70

Figure 20: Perceived E-Readiness Model Concepts	73
Figure 21: TOE Framework	75
Figure 22: Adopted Extended TOE Model for this Study	94
Figure 23: Research Onion	97
Figure 24: Researcher Logic Behind an Inductive Approach	110
Figure 25: Data Triangulation Techniques	125
Figure 26: Qualitative Data Analysis Phases	133
Figure 27: New Extended TOE Model For SMEs' E-commerce Adoption in Pakistan	265

List of Tables

Table 1: Users of the Internet in the World Regions	20
Table 2: Statistics on Internet Use in Pakistan	26
Table 3: EU Based Business Category	47
Table 4: US Based Business Category	47
Table 5: OECD Based Business Category	48
Table 6: Asian Based Business Economies	49
Table 7: Pakistan Based Business Category	49
Table 8: Total Growth of SMEs in Four selected Asian Economies	51
Table 9: SMEs Total Contribution to Pakistan's Economy (%)	54
Table 10: Characteristics of Participating SMEs (cases)	117
Table 11: Pilot Test SME Information	123
Table 12: Telephonic Unstructured Interviews Information (Pilot Study)	127
Table 13: Semi-Structured Face-to-face Interview Information	128
Table 14: Unstructured Telephonic Interview Information	129
Table 15: A Manual Coding List for Data Analysis	137
Table 16: Study Participants	145
Table 17: Common Factors Affecting E-commerce Adoption Based on the Model of TOE Framework	164

List of Abbreviations

ADB	Asian Development Bank
ARPA	Advanced Research Projects Agency
B2B	Business to Business
B2C	Business to Customer
B2E	Business to Employee
ERP	Enterprise Resource Planning
FPCCI	Federation of Pakistan Chambers of Commerce and Industry
GBP	British Pound
GDP	Gross Domestic Product
HR	Human Resources
ICT	Information and Communication Technology
IP	Internet Protocol
ISP	Internet Service Provider
LDC	Less Developed Country
MoITT	Ministry of Information Technology and Telecommunications
NTD	New Taiwan Dollar
NSF	National Science Foundation
OECD	Organisation for Economic Co-operation and Development
PEER	Perception of the Electronic External Preparation
POER	Perception of the Internal Electronic Preparation of the Organisation
PKR	Pakistani Rupees
PTA	Pakistan Telecommunications Authority
PTCL	Pakistan Telecommunication Limited

RCC	Regional Chamber of Commerce
RQ	Research Question
SECP	Securities and Exchange Commission of Pakistan
SBP	State Bank of Pakistan
SDNPK	Sustainable Development Networking Programme
SME	Small and Medium-sized Enterprises
SMEDA	Small and Medium Enterprises Development Authority
STP	Software Technology Park
TOE	Techonology-Organisation-Environment
TCP	Transmission Control Protocol
TCS	Tranzum Courier Service
UNDP	United Nations Development Programme
UK	United Kingdom
US	United States
USD	United States Dollar

Chapter 1: Introduction

1.0 Research Introduction

Latest research indicates that electronic commerce (e-commerce) as an online business tool provides many benefits to Small and Medium-sized Enterprises (SME) with the availability of latest information and communication technology (ICT) infrastructure (hardware and software). A wide range of benefits for SMEs in developing and developed economies include increased profitability and scope through reducing costs, while simultaneously providing a better – more innovative – service to many clients in the local business markets (Ainin, Parveen, Moghavvemi, Jaafar, & Mohd Shuib, 2015; Caniëls, Lenaerts, & Gelderman, 2015; Shaltoni, West, Alnawas, & Shatnawi, 2018, & Fan, 2019). Many researchers in the area of e-commerce believe that with the availability of the latest ICT setup, it provides many advantages to organisations at various levels. However, due to internal and external factors, the adoption of this innovative technology is still complicated for SMEs in most economies (Kapurubandara & Lawson, 2008). As a result of this statement, this study focuses on the current situation of the various SME sectors in the development and adoption of innovative technologies such as e-commerce. This can be examined in relation to the availability or non-availability of latest ICT infrastructure which helps to find the various e-commerce adoption factors that impede SMEs in various sectors; while embracing e-commerce.

In the literature, recent studies (Ahmad, Markkula, & Oivo, 2013; Al-Somali, Gholami, & Clegg, 2015; Fan, 2019; Katsioloudes, & Al-Bakri, 2015; Lim, Lim, & Trakulmaykee, 2018; Villa, Ruiz, Valencia, & Picón, 2018) and earlier studies (Al-Qirim, 2007; Bharati & Chaudhury, 2006; Grandon & Pearson, 2004; Scupola, 2009; Wilson, Daniel, & Davies, 2008) have also reflected considerably on discovering different adoption factors related to e-commerce in the various sectors of SMEs. However, these studies were mostly conducted within the developed economies. Exceptions including of developing economies include latest studies (Ajao, Oyebisi, & Aderemi, 2018; Awiagah, Kang, & Lim, 2016; Dar, Ahmed, & Raziq, 2017; Hyder & Lussier, 2016; Kurnia, Alzougool, Ali, & Alhashmi, 2009; Kurnia, Choudrie, Mahbubur, & Alzougool, 2015; Rahayu & Day, 2015; Shemi & Procter, 2013, 2018) and earlier studies (Cloete, Courtney, & Fintz, 2002; Duncombe & Molla, 2009; Molla & Licker, 2005; Seyal, Awais, Shamail, & Abbas, 2004; Tan, Tyler, & Manica, 2007). The findings of these studies showed various contextual factors that affected their local SMEs while adopting innovative technologies and also provided opportunities to other researchers from various countries to study other factors or elements in a different way.

Many researchers from developed countries have determined that the chapter of e-commerce is closed, while others have provided new opportunities to explore the e-commerce phenomena and its adoption in various SMEs (Chitura, Mupemhi, Dube, & Bolongkikit, 2008; Kurnia et al., 2015; Parker & Castleman, 2007, 2009). Ghobakhloo and Tang (2013) specified that since e-commerce and ICT extensions are dynamic, many owner-managers/Chief Executive Officers (subsequently referred to as owner-managers) and management of SMEs are allowed to get the maximum benefits out of new technological innovations – including e-commerce – and expand their business both locally and globally. Choochinprakarn (2016) and Maguire, Koh, and Magrys (2007) further believed that it is essential that the SMEs' owner-managers take a strategic approach to their business information needs if they wish to grow and remain competitive in different markets. Without specific information, owner-managers will face difficulties while making operational, tactical and strategical decisions for their business. Therefore, some of the previous studies (Levy & Powell, 2005; Ponelis, 2015) have proved that the ability to use e-commerce successfully as an online business tool for owner-managers to inform decision-making has a critical influence on the competitiveness of many SMEs. Hence, it is necessary to develop and adopt different patterns of e-commerce applications within the SMEs to enable owner-managers and their firms to achieve the benefits with the least amount of difficulty.

As discussed above, this study examines different SMEs' e-commerce adoption factors with the help of various theories, patterns and related adoption dimensions. Geographically, this study focuses on the local business environment of Pakistan as a developing Southeast Asian economy to further understand and discuss the following six literature categories/issues: overall characteristics and situation of SMEs, usage of ICT infrastructure units, role of owner-managers, factors affecting the adoption of e-commerce, the role of the Government of Pakistan (GoP), and lastly, support of various local business institutes including the Small and Medium Enterprise Development Authority (SMEDA), State Bank of Pakistan (SBP), Regional Chambers of Commerce (RCC), Ministry of Information Technology and Telecommunication (MoITT) and the Federation of Pakistan Chambers of Commerce and Industry. This examination will help to study the different business activities of various SME organisations at different levels and find answers relating to e-commerce adoption. These include how and why e-commerce has developed, and how and why it should be adopted by the owner-managers of the various organisations of different sectors such as manufacturing, hospitality, tourism, and ICT hardware companies.

Moreover, with the detail discussion of the above six mentioned literature categories/issues in upcoming chapters, this study will also develop an extended framework and then apply it

in the context of Pakistan (as a developing economy) to find out the hidden critical adoption factors for e-commerce in SMEs. This thesis examines e-commerce adoption at various levels within the selected organisations in the background of a developing economy because – as has been already noted – in the literature, it is found that previous studies on the topic of innovations such as e-commerce in SMEs, have mainly been conducted in the background of developed and Western countries (Molla & Licker, 2005). This is one of the motivations for considering a study which focused primarily on Pakistan as a representative case of a developing economy in the Southeast Asian region.

This first chapter therefore presents the following: an overview of the importance of e-commerce; the purpose of this study, by stating the logic of the research; the study's research questions (also referred to as RQs) and objectives; and the research design of the overall study with the importance of research and contributions. This chapter also presents information about Pakistan, as the geographical setting for this study.

1.1 Research Background and Significance

The online business tool, e-commerce, described by Turban, Lee, King, Liang, & Turban (2010), is a process of buying, selling, transferring and exchanging various products and services or information online through the availability of ICT infrastructure units and computing devices. Similarly, Abdullahi, Jakada, and Kabir (2015) stated that e-commerce refers to the buying and selling of information, products and services via computer networks. Most recently, Shemi and Procter (2018) further argue that e-commerce is transforming the way in which SMEs traditionally perform business transactions. According to some researchers (Alyoubi, 2015; Annan, 2001; Kurnia et al., 2015; Lituchy & Rail, 2000), e-commerce has a considerable tendency and potential to contribute to the regional and international economic growth of world economies. There is no doubt that the adoption of e-commerce by business can play a key role in competitiveness and economic sustainability (Elbeltagi, Hamad, Moizer, & Abou-Shouk, 2016). E-commerce is an online tool that is not only useful for large companies but also essential for SMEs. E-commerce in developing economies not only helps SMEs reduce transaction costs, but also goes beyond traditional sales methods (face-to-face, word of mouth and relational) and offers the opportunity to choose from a wide range of products and services that are available in the retail facility (Molla & Licker, 2005). Therefore, it is essential that SMEs adopt e-commerce as an online business tool to survive in the competitive online business market; with the support of local and government institutes (Nazir & Zhu, 2018).

E-commerce is based on a variety of ICT infrastructure devices include telephone lines, broadcasting and networking devices, personal computers, digital TV broadcasting and the internet for communication. As discussed earlier, e-commerce has the potential to improve the overall condition and productivity of SMEs in many areas and as a result, nowadays has generated considerable attention in many economies (Baridam, Nwibere, & Awa, 2015). Specifically, developing economies with emerging markets have a vast potential for adopting e-commerce in many sectors. In relation to such potential, Alyoubi (2015) noted that e-commerce as a solid business strategy provides an ideal opportunity for these economies to take better advantage of new, changing economic and technological opportunities.

It is found that the adoption of e-commerce in the SME industry is governed by its benefits (Kaynak, Tatoglu, & Kula, 2005; Sims, Shanmugam, & Hajli, 2014). Many studies have demonstrated that before investing any money in new innovative technologies such as e-commerce, the top management – which includes owner-managers and other managerial staff members – need to be aware of the potential benefits of e-commerce technology. According to Noyce (2002), this is because e-commerce is a marketing tool for doing business online and SMEs need to be supported to go online and communicate globally with potential customers and business partners, including suppliers. E-commerce as an online tool is considered essential for the SMEs of less developed countries (LDC), and a number of studies have highlighted the potential role of e-commerce for many economies (Datta, 2011; Kshetri, 2007; Molla & Licker, 2005; Moodley & Morris, 2004). However, Kshetri (2007) believed that most SMEs within the context of developing economies are still not aware of the benefits of e-commerce.

Moreover, over the past decades, the role played by SMEs has been significant and numbers have steadily increased – particularly in developing economies – as SMEs are considered an essential element, and the backbone of many economies (Chaudhry, Ali, Fareed, & Fakher, 2014; Elbeltagi et al., 2016; Idris, Edwards, & McDonald, 2017; Rahayu & Day, 2015; Mutula & Van Brakel, 2007). Due to their economic contribution regarding job creation, significant development has been seen in many economies (Bharati & Chaudhury, 2006; Fan, 2019; Jones & Beynon, 2011) because SMEs have a substantial impact on the growth and financial stability of their economy (Hyder & Lussier, 2016; Rao, 2014; Ratten, 2014). The rapid advancement of e-commerce and internet technology (world wide web – subsequently referred to as the web) has resulted in many technological changes across developing and developed economies. These include increased online buying and selling activities, increased business efficiency to provide products and services, and improved networking communications systems with stakeholders, partners and other financial and

government clients (Hoti, 2015; Jones & Beynon, 2011; Kurnia, 2015; Looi, 2005; Montazemi, 2006). Thus, Chaston (2004), and more recently, Shemi and Procter (2018), have argued that there is an incentive for both small and large-scale businesses to develop their commercial activities beyond the physical limits of organisations in remote, underdeveloped geographic areas, with the help of the latest ICT infrastructure units.

According to the latest report of the United Nations Conference on Trade and Development (UNCTAD) (2018), – established in 1964 as a permanent intergovernmental body – developing economies should adopt e-commerce as a new technology without reservations because this new technology will improve their economic, social and human development. In turn, this will lead to higher business productivity, reduce the operating costs of business and also improve the level of integration with other international markets. The report further shows that these developing economies generally had low rates of basic internet usage, but the growth rate was high. In an earlier report (2005), UNCTAD reported that between 2000 and 2005, these developing economies experienced an increase in the internet user population of around 400 million. This corresponds to a growth rate of 300% and they also increased their international participation of online users from 25% to 40%. Moreover, internet bandwidth has followed a similar trend since the increase in bandwidth in these economies has doubled when compared to developed economies. While these statistics can be extrapolated to a corresponding rise in e-commerce adoption in developing economies, many local issues are still obstacles for these developing economies in their pursuit of economic and business prosperity through e-commerce (Alyoubi, 2015; Molla & Heeks, 2007).

Due to the constant evolution of the domain of information sciences and the diversity of the needs of the local business and international markets, the adoption of e-commerce has proved challenging for many businesses – including SMEs – from all around the world because of many hidden factors (Jones, Packham, Beynon-Davies, & Pickernell, 2011; Shemi & Procter, 2013). Previous studies of e-commerce and its adoption report that within the context of developing economies, SMEs have not taken maximum advantage of the internet as a means of communication and also to extend their business activities; both outside the traditional borders and within their boundaries (Bai, Law, & Wen, 2008; Humphrey, Mansell, Pare, & Schmitz, 2003; Molla & Licker, 2005). It is noted that an exception to this is the traditional application of simple techniques such as electronic email (Mpofu & Watkins-Mathys, 2011). Other reasons persist in the literature and include the cost of the acquisition and exploitation of ICT resources, the availability and quality of latest ICT infrastructural units to support e-commerce, lower knowledge levels of the owner-managers in terms of e-commerce adoption, the inability to perceive the benefits of e-

commerce, various policies for the adoption of technology, unfriendly regulatory obligations, cultural issues in various economies and the dependence of the preferences of the customers and business suppliers. Therefore, studies by both Knight (2001), and more recently Rabie (2013), have shown that in order to change management processes and change the overall traditional business culture of many organisations, SMEs need to adopt new, technologically innovative planning strategies in order to cope with the motives of the latest technology.

As a result, there has been an increase in the importance – and relevance – of the topic under study. It is no longer a new topic and many previous studies have examined the e-commerce adoption as an innovation in different cases. However, researchers agree that a single theory and model cannot be achieved or applied in the development and adoption of e-commerce in the context of SMEs due to the diversity of methods and fundamental hierarchical design of organisations (Drew, 2003; Molla & Licker, 2005; Rolland & Monteiro, 2002; Shemi & Procter, 2013). The uneven adoption and diffusion of various ICT resources, goods and services between developing and developed economies – and between urban and rural SMEs – similarly show how e-commerce is valued and functional in organisations (Kurnia et al., 2015). Many researchers have further concluded that the accessibility of e-commerce resources in developed economies has contributed significantly to e-commerce adoption and its integration as an innovation in the business processes of those organisations (Al-Qirim, 2007; MacGregor & Kartiwi, 2010). However, for many developing economies it is found that e-commerce resources have been challenging to obtain and use successfully, and the overall cost of acquiring e-commerce projects has been very high. In Pakistan, this has been found to be the case particularly for small businesses (SMEDA, 2018a). The failure of many e-commerce projects in developing economies has been attributed to problems of “poor understanding of the context” (Duncombe & Heeks, 2002), and has led to the closure of e-commerce businesses (Avgerou, 2008). Therefore, these need particular investigation. These concerns are also relevant to the adoption of e-commerce.

Further, many researchers have used different adoption models, theories, approaches and conceptual frameworks in their studies to find out e-commerce adoption factors (Kurnia et al., 2015; Molla & Licker, 2005; Putra, Hasibuan, & Sunarya, 2017). These include: Technology Acceptance Model (Davis, 1989), Theory of Planned Behaviour (Ajzen, 1991), Perceived E-Readiness Model (PERM) (Molla & Licker, 2005), Diffusion of Innovation Theory (Rogers, 1995), Technology-Organisation-Environment (TOE) framework (Tornatzky & Fleischer, 1990) and Resource-Based Theory (RBT) (Barney, 1991). Similarly,

most of the previous literature has focused on the methodological approaches that are entirely unclear for those participants who contributed to the data collection process.

Therefore, this in-depth qualitative case study seeks to make a new contribution to the current body of knowledge as well as to fill research gaps, by examining the current adoption factors of e-commerce with the participation of members of different organisations. This was achieved by first examining existing theories and models of adoption and then forming an extended framework to find the hidden e-commerce adoption factors in the context of a developing Southeast Asian economy, Pakistan. With the help of an adoption framework, this study further contributes in knowledge by extending the TOE framework (Tornatzky & Fleischer, 1990), as revealed by Ghobakhloo and Tang (2013). This is organised into four TOE model factor themes: technological contextual factors, organisational contextual factors, environmental contextual factors and an additional individual contextual factors. The latter could identify the individual characteristics of owner-managers and the role of management that could influence the adoption and development of e-commerce, and could be applied in the Pakistani business environment. Also, the study of Pakistan, as an example of a developing economy, was found to be useful for supplementing technology adoption studies that – to date – have focused mainly on developed economies.

Moreover, the national institute, SMEDA promotes e-initiatives and helps many SMEs to adopt and develop e-business strategies in their business processes. With the help of SMEDA's future policies in Pakistan, the IT infrastructure of many SMEs is now improving, enabling the e-commerce environment in business, developing ICT tools and resources for e-commerce and modernising e-services with the collaboration of many public and private actors (SMEDA, 2017). Therefore, the general importance of this research is also to increase knowledge, especially in the areas of various SMEs adoption of e-commerce applications and in the context of a developing economy.

1.2 Research Rationale

After examining the extant literature, only a few examples have been found on innovation adoption – such as e-commerce – in the context of developing economies (Alyoubi, 2015; Ahmad et al., 2013; Al-Alawi & Al-Ali, 2015; Al-Somali et al., 2015; Awiagah et al., 2016; Kurnia et al., 2015; Molla & Licker, 2005; Rahayu & Day, 2015; Seyal et al., 2004; Shemi & Procter, 2013) relative to developed economies (Al-Qirim, 2007; Duncombe & Molla, 2009; Grant, Edgar, Sukumar, & Meyer, 2014; Lip-Sam & Hock-Eam, 2011; Scupola, 2009). It was further found that those studies in developing economies used different conceptual frameworks and adoption theories that were used primarily in the context of developed

economies. According to Ajao et al. (2018), Gilaninia, Danesh, Amiri, Mousavian, and Eskandarpour (2011), and Muchie and Bekele (2009), although e-commerce is a new technology widely adopted by a few large multinationals, some studies have been conducted on the adoption of e-commerce by SMEs. However, developing economies have always been under the technological adoption frontier and have therefore remained slightly behind and less competitive than advanced and Western economies. Therefore, it is necessary to examine different theoretical frameworks and theories of adoption to determine the hidden contextual e-commerce adoption factors in the context of developing economies (Nazir & Zhu, 2018). As discussed earlier, this study attempts to fill the gap and contribute to the body of literature; after having developed a broad conceptual framework that could explain the contextual characteristics of SMEs in a given region of the world. For example, some common features constrain many SMEs in the context of developing economies, including limited budget, poor quality of the ICT units, size of organisations, proprietary ownership characteristics, and inadequate government policies for e-commerce and ICT implementation. Such features have not been previously addressed by adoption theories and frameworks in developing countries (Al-Alawi & Al-Ali, 2015).

Of note is that during the 2015 SME Finance Quarterly Review, the SBP recognised the vital role that SMEs played in the development of the economy during the period of December 2014 to 2015 (Azam, 2015). The report shows a growth of 6% in different sectors of SMEs, due to the SME-friendly measures taken by the SBP and several specialised local business institutions. These include commercial and public sector banks working individually in SME financing such as Khushali Bank, Kashaf Microfinance Bank and Tameer Microfinance Bank (SBP, 2015). However, as is common in most developing economies in the region, the adoption rate of e-commerce by Pakistan's SMEs is still lagging behind other regional and developing South Asian economies and needs to be studied further (Hyder & Lussier, 2016; Seyal et al., 2004).

To the knowledge of the author, to date no qualitative case studies have been undertaken in Pakistan on the adoption of e-commerce by SMEs. A few studies have been identified in relation to SMEs (Dar et al., 2017; Hyder & Lussier, 2016; Khaskheli & Jun, 2016; Seyal et al., 2004; Subhan, Sattar, & Mehmood, 2013; Syed & Shaikh, 2012; Zafar & Mustafa, 2017) but these were conducted on topics other than e-commerce. Their focus tended to be on the general situation of the SMEs in the country, why SMEs are facing problems in terms of growth etc. In addition, those researchers used different research methodologies and frameworks or theories to the qualitative interpretive methodology chosen as part of this study. Therefore, this study is considered the first Pakistani research on the qualitative interpretative approach following the extension of the TOE framework (Tornatzky &

Fleischer, 1990) to find additional factors of owner-managers in the development and e-commerce adoption at organisational levels.

1.3 Research Questions and Objectives

The scarcity of investigation into e-commerce adoption that explores the factors influencing adoption – particularly in the region of Southeast Asian developing economies – leaves a substantial gap that needs attention. Therefore, this study aims to inspect and explain the different factors behind e-commerce adoption as an innovation in the SMEs of Pakistan. Of note is that the total financial contribution to SMEs in Pakistan was reduced by 31% from 567 billion Pakistani Rupees (PKR) to 369 billion PKR between 2011 and 2015. This was due to the slowness of the innovation market, the general situation of the SMEs in the country and its commercial activities in the local business environment and other related factors (SBP, 2015). In light of this, the challenge for this research was carefully considered; *the adoption factors of e-commerce affect the growth of SMEs in the context of Pakistan, as a developing economy.*

Also, previous studies show that small firms are very slow in adopting innovative technologies such as e-commerce in the region of South Asian economies (Zafar, Ishaque, & Javaid, 2014). This presents a considerable challenge since Hyder and Lussier (2016) believed that SMEs account for 90% of all firms in many economies. Indeed, slowing down the pace of innovation adoption in the structure of the organisation is a crucial issue to consider. Therefore, research question (RQ) 1 discusses the current nature and characteristics of SMEs' e-commerce activities in Pakistan to understand the overall structure of these businesses fully. RQ1 is:

RQ 1: What is the current situation of SMEs' e-commerce adoption in Pakistan?

To address RQ 1, the following research objectives were discussed:

- *To study the overall characteristics and situation of SMEs.*
- *Examine the e-readiness of SMEs for the adoption of e-commerce using the latest available ICT infrastructure units (hardware and software).*

According to Kapurubandara and Lawson (2008), and Simpson and Docherty (2004), there are many adoption barriers to e-commerce within the SMEs. Within this study, the barriers within SMEs will be identified using the analysis of the different technologies available to them such as their hardware and software tools; overall internal physical ICT environment; and perhaps most importantly, the ICT awareness and knowledge of e-commerce among

owner-managers and management (Ghobakhloo and Tang, 2013). Therefore, the second RQ is:

RQ 2: What are the different e-commerce adoption factors in the SMEs of Pakistan?

To discuss RQ 2, the following objectives will be followed:

- *To highlight the overall characteristics and leadership role of owner-managers and management in the adoption of the e-commerce project and its further development in SMEs.*
- *To investigate various contextual adoption factors of e-commerce for the successful development of innovative technologies such as e-commerce in SMEs.*
- *Examine different barriers and drivers that prevent or encourage SMEs to adopt an e-commerce project within the organisational structure.*

The final research question of this study summarises all responses from RQ 1 to RQ 2.

RQ 3: What strategies should be put in place to develop e-commerce adoption practices in the SMEs of Pakistan with the help of local and provisional government(s), local business institutes and awarding agencies (such as SMEDA, RCCs, SBP, MoITT and the Federation of Pakistan Chamber of Commerce and Industry)?

To discuss this research question (RQ 3), the researcher explains some useful strategies in future chapters of the thesis using a conceptual framework and an extended model. In addition, there is an analysis of the local legal and business environment of Pakistan to assist SMEs in the development and adoption of e-business projects in their organisations.

1.4 Research Context

1.4.1 Pakistan's Economy and SMEs

Pakistan is a developing economy in South Asia, located in the South-East Asia region, which currently has more than 210 million inhabitants and a Gross National Income of 1,629 United State Dollars (USD) (SBP, 2018). Pakistan is based on agriculture and the semi-industrialised economy, followed by the business sector, both in terms of its share of gross domestic product (GDP) and employment. Because of the crucial role played by the trade and commerce industry in the country, the GoP has created an organisation that helps to create and promote the SME industries at the national level. This agency is called SMEDA and is primarily responsible for formulating various industrial policies for the promotion and

facilitation of financing of SMEs, and it also contributes to the training and education of various entrepreneurs at different levels (Hyder & Lussier, 2016).

Despite SMEDA's efforts as a local business institute in the country, Pakistani SMEs in various sectors are still struggling. While studying the living conditions of SMEs in Pakistan Hyder and Lussier (2016) cited various reasons for the deplorable conditions in the country's SMEs, including the criticism that the GoP is an obstacle to the adoption of innovations. The study found that, based on the assumption of local market failure, Pakistan (as a developing economy) initially followed the planning model adopted in the 1960s. The fear of local market failure led GoP officials to develop technology policies that were not promoting innovative technologies in the country – an essential element of entrepreneurship. Also, the cost of doing business is higher in Pakistan than other countries in the region, as land acquisition and business costs are complicated and high due to restrictive regulations of local and provisional governments. The higher cost of commercial land has consequently shifted the interest of owners of other businesses to real estate that has allocated funds to expensive commercial land that could have been used for business growth. Also, GoP policies favoured large companies and neglected a variety of SMEs, especially new businesses. However, after decades of wars and social and political instability in the country, from 2013, severe deficiencies and corruption were found in essential services and departments such as rail and electricity.

Pakistan has improved and reformed its environmental business plan and has pursued the enhancement of its entrepreneurial atmosphere and government; something which is helping to further improvement and growth in the SME private business sector. Most of the financial sectors in the country that are considered as private business institutions have the latest infrastructure units because they restructured their old systems and implemented new ICT devices to run their business processes smoothly. However, the overall technological progress of the country is significantly lower than other economies in the Southeast Asian region (World Economic Forum, 2016). In terms of tax collection, within Pakistan the Federal Board of Revenue is responsible for the tax collection. However, due to inadequate tax collection systems in the country along with poor reforms, this authority has failed in its tax collection duties. Several reforms have been introduced by the government to transform the old configuration after the newly elected government, led by Pakistan's new Prime Minister Imran Khan, came into power in 2018. These reforms aim to ease the burden on SMEs by lowering tax rates, broadening the tax base and increasing transparency in the tax institutes through openness, communication and accountability. However, the tax system remains complex and inefficient (Asian Development Bank (ADB), 2018; Economic Freedom Report, 2019).

In recent years, Pakistan has continued its reforms to improve the overall business situation of the local business environment and also facilitate the development of the private sector industries in the country. The financial sector has undergone modernisation and restructuring. However, it seems that the country's overall business performance is still significantly lower than that of other economies in the region.

Based on the above discussion about the current business and economic environment of Pakistan, the country's local business markets, including SME companies of various sectors are still lagging in the world of innovation usage, including e-commerce. However, due to GoP initiatives towards e-commerce as an innovative tool for many SMEs and new entrepreneurs, and with the efforts of SMEDA policies, the state has recently seen a massive rise in online shopping trends and other e-business offline and online activities. In recent years, exponential growth trends of e-commerce activities can easily be seen within the local business environment and it has been found that online business generates e-commerce revenue of USD \$30 million. This shows a very positive image for a better future of the online industry and the size of the e-commerce business market in Pakistan, and therefore, it is expected to reach more than USD \$250 million by 2020 (Ahmad, 2015). Ahmad's study shows that with e-commerce, many innovative online opportunities are evolving rapidly and present online businesses with unprecedented growth rates. At the same time, effort is still required to reach the country's real e-commerce potential and compete with other major players in the South Asian region. Numerous issues are accountable for the significant shift in buying patterns over time and the growth of e-commerce in the culture of Pakistan (Ahmad, 2015).

Pakistan, being a developing economy, must develop and implement effective e-commerce policies, and should formulate better strategies to participate in the global online economy compared to other players; as it lags behind other countries. Pakistan is widely regarded as part of the third wave of developing economies: these include countries in South Asia, Latin America, the Pacific Islands and the Middle East. All have a state monopoly over the ICT sector with a low telephone density (teledensity) per population and very high adoption costs of ICT devices, which limits access to the internet to elitist groups of the population (Hamid, 2002). As an example, less than 55.1% of the population (in the case of Pakistan, less than 22.2%) is connected to the internet (IWS, 2018). These countries have weak political and democratic organisations where governments welcome new business opportunities, but at the same time, they feel threatened by technological advances.

Hence, the above-detailed situation is the main reason for codifying this study to investigate the e-commerce adoption factors that influence SMEs in Pakistan. For this reason, Pakistan

was chosen as a developing economy in which to conduct the research for this study. Pakistan itself has not been selected for any specific reason, but rather as a developing economy in South Asia with social, commercial and industrial characteristics that can be responsible for a rich dimension and uniqueness in the acceptance of e-commerce. The reason for choosing Pakistan for this study also relates to the contribution of SMEs to the economy of Pakistan and its GDP (SBP, 2018). This is within the context that other research has recognised that SMEs are crucial for global economies (Organisation for Economic Co-operation and Development (OECD), 2015).

1.5 Structure of the Thesis

This thesis contains eight chapters that begin with an introduction, and each section of the chapter highlights the areas in order to achieve the objectives of the study. They are summarised as follows and illustrated in Figure 1:

Chapter 1 – Research Introduction: The first chapter of this thesis presents the introduction of the research followed by the research context and its meaning; states the purpose of the research to be studied; the research questions and objectives to be achieved in different chapters of the thesis; and the context of the research in Pakistan.

The second and third chapters present the context of the research on two different aspects.

Chapter 2 – Context of the Research: The second chapter reviews the context on the development of the internet and e-commerce, and examines the current state of internet adoption and use in most developed and developing economies. Also, the concepts of e-commerce and its history are highlighted to differentiate between e-commerce models, traditional sales techniques and online sales techniques. The growth of e-commerce is discussed with a comparison of developed and developing economies; particularly in the context of Pakistan as a developing economy in the South-East Asia region. Barriers to e-commerce adoption and various challenges are also discussed at the end of Chapter 2.

Chapter 3 – SMEs' E-commerce Adoption: This third chapter examines the adoption by SMEs of innovations such as e-commerce. In this chapter, the concept of SMEs is discussed and how different countries have defined the concept of SMEs and their contribution to the economic growth of many economies, including Pakistan. The benefits of e-commerce for SMEs in many developed and western economies are also discussed.

The fourth and fifth chapters present the literature review on two different aspects.

Chapter 4 – Literature Review: E-Commerce of SME's: The fourth chapter of this thesis reviews the literature on the online readiness for the adoption of e-commerce by SMEs. The chapter then goes on to review the leadership role of embracing innovation at the organisational level and builds on previous studies in developed and developing economies. These studies are subject to a critical review and summary of the main factors that hinder the adoption of e-commerce. In addition, the role of government and the support of various local business institutes in the adoption of e-commerce are presented. At the end of the chapter, the gaps and problems identified in the literature related to the adoption of e-commerce by SMEs, and additional guidance, are presented to identify the areas that should be covered in this study in order to fill the gaps.

Chapter 5 – Literature Review: Theories Associated with SMEs' E-commerce Adoption: The fifth chapter of this thesis reviews the literature on the theories and adoption models used in the field of adoption of innovation and particular technological innovations such as e-commerce. This study focused on the following topics: RBT (Barney, 1991), PERM (Molla & Licker, 2005), and TOE (Tornatzky & Fleischer, 1990). After a critical review of these theories and framework, a TOE framework was adopted for this study with a particular focus on the identified gaps, and then a model is proposed to identify the barriers and drivers of SME e-commerce adoption at technological, organisational and environmental contextual levels. The chapter then examines the previous factors affecting the adoption of e-commerce in SMEs in developed and developing economies. At the end of this chapter, the researcher also extends the TOE model with an additional category called "Extended Individual Factors" to determine the characteristics of owner-managers and management that can influence the adoption of e-commerce by SMEs at its organisational levels in the context of Pakistan.

Chapter 6 – Research Philosophies and Methodologies: The sixth chapter discusses research philosophies and an appropriate methodology for this study. The chapter begins with the research onion and then addresses each of its centres (research onion context). Two paradigms have been examined, namely interpretivism and positivism in the general sense, and have been adopted in this study on the adoption of e-commerce with justifications. It also addresses the appropriate research methodology that enables the RQs to be answered, and a case study methodology is chosen. The chapter also discusses data collection techniques and the reasons for choosing them.

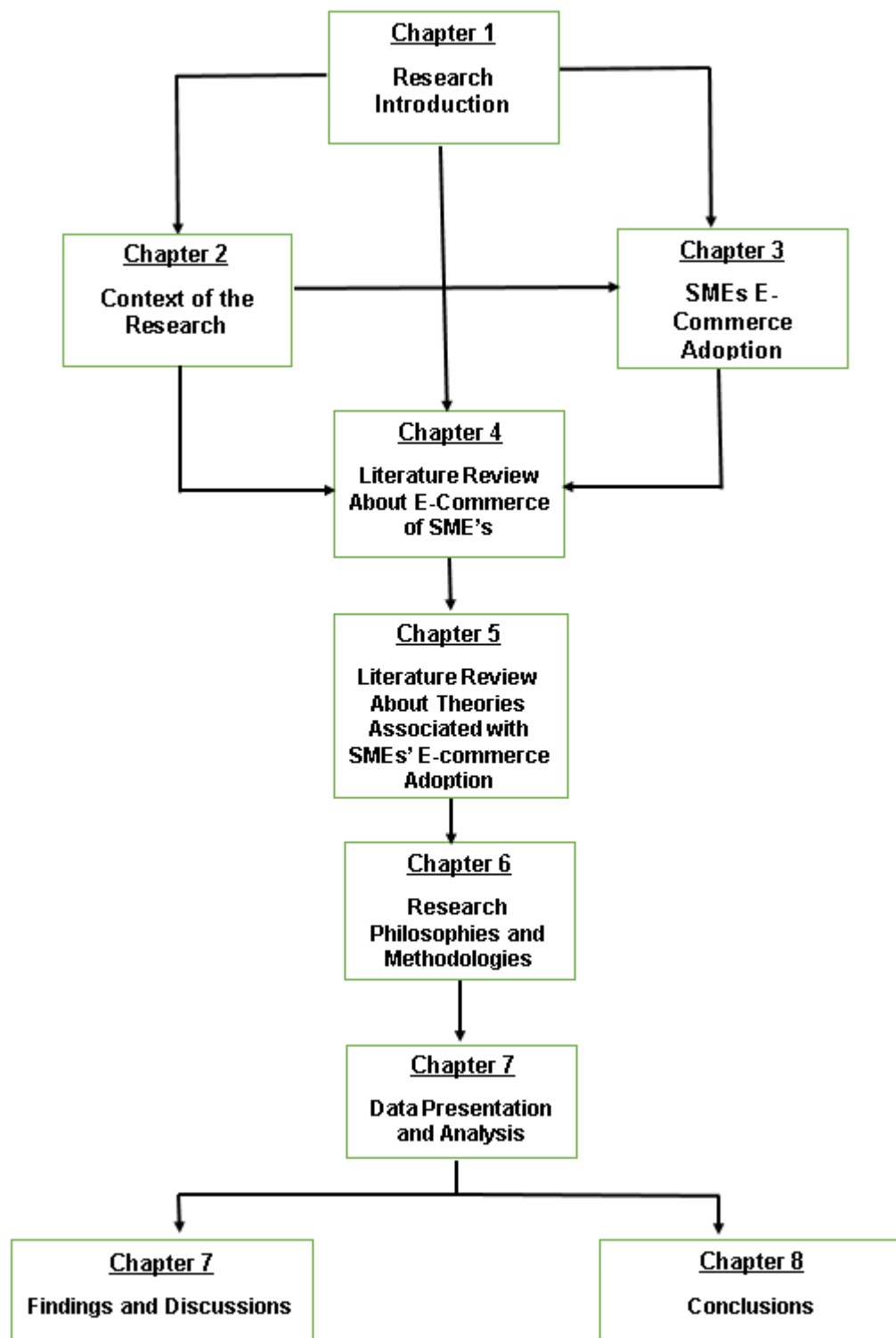
Chapter 7 – Data Presentation and Analysis: This chapter presents the contextual view of the e-commerce phenomenon in eight selected SMEs, based on interactions between the researcher and the participants, who include owner-managers and management. This

chapter is based on the conceptual framework developed to provide answers to relevant RQs based on the six conceptual themes of the analysis. The first theme deals with the characteristics and general situation of selected SMEs in order to determine the hierarchical divisions of each organisation for the implementation of e-commerce at the organisational level. The second theme concerns the availability and quality of the latest ICT infrastructure units (hardware and software) to support innovative technologies such as e-commerce. The third theme is the role of owner-managers in each SME in influencing e-commerce adoption decisions in their organisational departments. The fourth theme concerns hidden factors affecting SMEs when adopting e-commerce technologies in their business processes. The fifth and sixth themes are to understand the external environment of firms by discussing the role of government and the support of local business institutes in the adoption of e-commerce by SMEs. In each case, the factors of the TOE are summarised in table format, which indicated various barriers and drivers for the adoption or non-adoption of e-commerce.

Chapter 8 – Findings and Discussions: The purpose of this chapter is to interpret and describe the preliminary results and review the results of the data analysis of eight cases through cross-case analysis and the literature review. The approach adopted in this chapter was to explain any new understanding or knowledge arising from the study of the problem in the context of Pakistan. The chapter also analyses various factors, their impact and their appearance in each organisation. The discussion of the results attempts to link the results of this research with those of previous literature reviews.

Chapter 9 – Conclusions: This last chapter of the thesis seeks to answer the main questions of this research. It considers the research contributions along with the implications for government, local business and owner/CEOs of SMEs and management. The chapter concludes with the limitations of this study and future research suggestions.

Figure 1: Summary of the Content of this Thesis



Source: Author

Chapter 2: Context of the Research

2.0 Introduction

This chapter presents a context of internet and e-commerce development as a new and innovative technology for many developing and developed countries. With the improvement of internet technology over several decades, e-commerce has become an indispensable business tool in the field of ICT. This new development has been observed in many economies around the world. In this development, the web has played an essential role in the successful dissemination of new technologies and the implementation of the modern method of internet commerce. Technology companies and business in the modern world appreciate this type of traditional transition to e-commerce and have become an essential pillar for the growth of many economies. As a result of this progress, companies in many economies are now seeking to maximise the growth of e-commerce at their level and take full advantage of this technology, as it will help increase e-commerce efficiency and the performance of business processes and productivity. The belief being that in this century, e-commerce via the internet would create more opportunities for organisations and individuals to conduct online transactions worldwide.

2.1 Internet Backdrop

The internet is now regarded as one of the most crucial networking tools and techniques. It is seen to have contributed to the dissemination of knowledge globally and is a necessary means for sharing experiences and knowledge, the dissemination of culture and knowledge and the creation of communication bridges between many developing and developed economies. The internet is one of the most useful and vital tools for many SMEs and large companies, especially in developed economies. E-commerce has become an essential channel for many businesses and could, therefore, be conducted via the internet (Mavimbela & Dube, 2016).

2.1.1 Background of the Internet

The dominant research tool we use today, the “internet” began in the 1960s and 1970s as part of an experimental project of the United States (US) Department of Defense’s Advanced Research Projects Agency (ARPA), to create a network for defence investigators and later for use by the military at a number of sites. The agency was renamed in 1972 and became the Defense Advanced Research Projects Agency and is responsible for the development of emerging technologies for use by the military. This network was born from

a project funded by ARPA and was called ARPANET. As would be expected given its origin, it was mainly connected to the computers of the US Department of Defense (Aspray & Ceruzzi, 2008, p. 3). The primary function of ARPANET was to find systems capable of both connecting a group of personal computers in different places and resisting any attack. The objective being that if one or more personal computers were destroyed during an attack, the other computers could continue to function without any loss of information or communication. Before the 1970s, ARPANET was used primarily for military purposes but during that decade, the US decided to expand ARPANET with military support to a system of interconnected networks that would be known as the internet. It was being developed by a small group of ARPA contractors and researchers already working on the next generation of network technology and was used not only to build the internet for military purposes but also as a model for other communication networks (Abbate, 1999, p. 113).

In 1983, the Internet Protocol (IP) was introduced and became the only approved method for sending data over the internet, allowing many organisations computers to share commercial information equally. Also, many network pioneers around the world had been working on developing and demonstrating the implementation and applications of packet switching technologies and their interconnection. An essential element in the design of the internet was to allow the interconnection of an arbitrary number of packet data networks using a global addressing scheme (now called the IP). The Transmission Control Protocol (TCP) provides end-to-end reliability, sequencing, flow control and duplicate detection at the IP layer. This set of protocols developed for the internet was eventually called the TCP/IP Protocol Suite (Cerf, 2014).

In 1984, the US National Science Foundation (NSF) launched their own network called NSF-NET, with the primary objective of providing high-speed communication tools to both commercial and non-commercial users as well as to link the supercomputer centres within the US. The NSF-NET was the backbone of many commercial and non-commercial users and the cornerstone of TCP/IP internet centres (Anthes, 1994). The majority of users of NSF-NET were scientists, government officials and university academic researchers. This was because only they could use the internet extensively and had in-depth knowledge of computers; since in the 1980s great skill was required to use a computer (Eccleson, 1999). In the same year, two new BITNET and Usenet networks were established. The main objective of these networks was to provide technology that was accessible to the public, to researchers and institutions who otherwise denied access (Aspray & Ceruzzi, 2008, p. 20). As a result, from various origins and after the spread of different networks in 1991 (NSF-NET, BITNET and Usenet) and the emergence of the new Compu Serve and America-

Online commercial networks, the internet appeared worldwide; driven by the ideas and efforts of countless collaborators around the world (Cerf, 2014).

2.1.2 Usage of the Internet

According to IWS (2018), nearly 4.2 billion people are active internet users; accounting for 52% of the world's population and 3.4 billion social media users. Further, a quarter of a billion new users (248 million (+ 7%)) have logged in for the first time since January 2017 (Kshetri, 2018). While the user ratio highlights the steady growth in usage, it is mandatory to make arrangements and make efforts to bring the internet to everyone in the specific region. Between 2002 and 2016, more than half of the population was not connected to the internet and did not use online resources. By 2018, the user ratio progressively exceeded 55.1% globally, mainly in the Asian (49%) developed and developing regions and the annual growth in the number of users had increased to 8% by 2015. The growth rate increases gradually, but the internet penetration rate (the percentage of the total population of a given country or region that uses the internet) remains below 50%. These rates are alarming for regions in Africa (36%) and Asia (49%) as compared to other regions of the world, and is due to various factors. Europe, with 85% penetration rate, saw a nominal increase in the growth rate in 2018 as compared to 2017. However, IWS (2018) estimated that Asia – which has just exceeded the number of internet users in 2018 – has a steady growth rate of 17% against 16% in 2017; therefore demonstrating a 1% increase. According to new data from IWS (2018), the growth of internet access worldwide has been significantly reduced, suggesting that the digital revolution will remain a distant dream for billions of the world's most impoverished and most isolated populations (The Guardian, 2018). See Table 1 for the figures in relation to users of the internet in regions of the world.

The slowdown in internet growth – especially in specific regions that already exceed the world average – forces internet companies to connect to those that are not. It was evident that existing users were increasingly concerned about security and privacy issues around the world, which could lead to inexperienced users becoming more reluctant to connect. If people trust the internet, they are more likely to use it. Trust was at the heart of the internet economy and increasingly at the heart of economic growth. “This makes our goal of promoting and restoring trust on the internet urgent” (World Economic Forum, 2016).

Table 1: Users of the Internet in the World Regions

Region	Total Population	Users of the Internet (June 2018)	Rate of Penetration (%)	Total Growth between 2000-2018 (%)	Total Internet World Users (%)
African	1,287,914,329	464,923,169	36.10	10,199	11.00
Asian	4,207,588,157	2,062,197,366	49.00	1,704	49.00
European	827,650,849	705,064,923	85.20	570	16.80
Latin American/ Caribbean	652,047,996	438,248,446	67.20	2,325	10.40
Middle Eastern/Arab	254,438,981	164,037,259	64.50	4,894	3.90
North American	363,844,662	345,660,847	95.00	219	8.20
Australia/ Oceania	41,273,454	28,439,277	68.90	273	0.70
World Total	7,634,758,428	4,208,571,287	55.10	1,066	100.00

Source: IWS (2018)

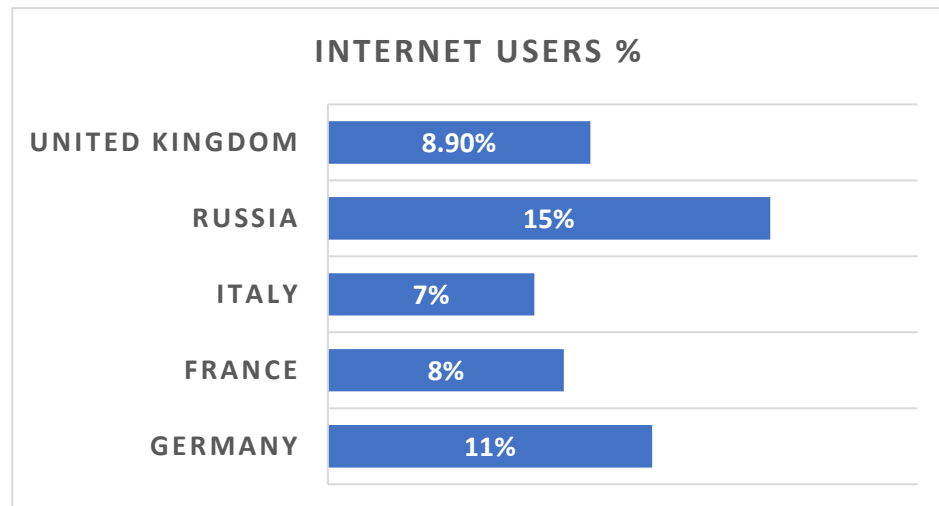
2.1.3 Internet in Developed Economies

The historical era that gave rise to the internet has seen similar technological advances, such as space shuttles, nuclear energy, computers and satellite television; all of which have political and economic interests (Bromley, 1998; Nicholas, 2003,). The internet itself was developed in the US in the late 1960s. During its evolution over the following two decades, the internet remained under the control of a few politicians and scientists located mainly in North America and Europe, as well as in some developed economies (Albirini, 2008).

The internet, the driving force behind the economic explosion related to cash flow, job creation and greater efficiency, gives Western industries and companies a competitive advantage in regional and global markets. It has contributed to the reactivation of Western economic hegemony through the control of information capital – the engine of the new information industries (Noble, 1998). These benefits have led technology industries to internationalise the new medium, which has grown to more than 1,240 million international users in less than 15 years (Albirini, 2008, IWS, 2007).

According to IWS (2018), more than 80% of Europe's population has access to the internet which is high when compared to other economies in the world. See Figure 2 for examples of the Internet Users Ratio for countries within Europe.

Figure 2: European Population Ratio of Internet Users



Source: IWS (2018)

Recent statistics for 2018 show that internet users in Europe have increased steadily over the last few years. Examples include Germany (11%), France (8%), Italy (7%), Russia (15%) and United Kingdom (UK) (8.9%). However, if we consider the Asian continent (49%) (as shown in Table 1), China, India, Japan and Bangladesh represent the majority of the internet population. In the past, North America was the internet use corridor with a penetration rate of 95%. However, after a slow start in Asia, this region has recently shown great interest in internet technologies compared to other developed and Western economies. Therefore, after Germany and the UK as the most developed economic regions, Russia (15%) (mainly in Eastern Europe but also part of North Asia) was the most advanced internet user (IWS, 2018). However, the Asian region has faced many challenges in adopting modern innovation technologies (Smith & Jenner, 1998).

2.1.4 Internet in Developing Economies

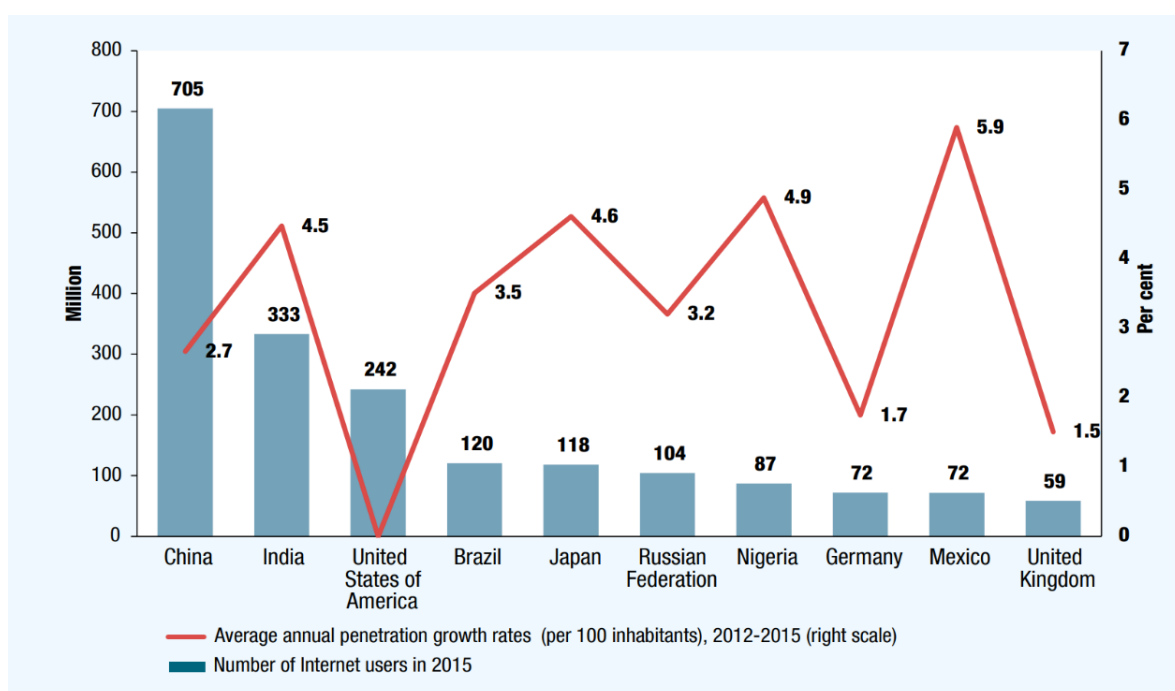
The current emphasis on the internet and ICT as a means of development and positive social change has a historical parallel in the last century. Since the end of the Second World War, in five decades, Western powers were determined to expand the means to strengthen development efforts in developing economies (Fagerlind & Saha, 1989). Today, technology companies play an active role in spreading the internet in most developing economies. To provide internet connectivity, these companies have offered various incentives and projects

in many countries, including those in Africa, Asia, Latin America and other parts of the world (Bu-Hulaiga, 2001).

According to the World Bank (2016), the achievement of key development outcomes, such as well-organised governments, competitive industries and financial growth, has been generally disappointing. In fact, despite the increasing spread of the internet and mobile technologies, the distribution of physical access is far from uniform (Avgerou, Hayes, & La Rovere, 2016). Among developing economies, data from the Information Technology University (2015) showed that while 62.5% of the world's internet users came from developing economies, two-thirds of them were still offline due to a range of issues. One of the main problems of low internet use in most developing economies is the limitation of international bandwidth. Many developing economies wanted to expand their local business operations to international markets, but this shortage of technological resources has hampered such expansion (Kamel, 2006). Also, there are significant disparities in access to socioeconomic groups, gender, age and education. Some ICT and development analysts and professionals have questioned caution about the assumption that ICT diffusion would affect the socio-economic conditions of developing economies (Avgerou et al., 2016). Toyama, for example, concludes in his 2011 study that ICTs can reinforce existing weaknesses instead of helping to overcome them. In 2015, developing economies and economies in transition accounted for 70% of internet users worldwide, with the most significant number in China and India (in the South Asia region) (see Figure 3).

As shown in Figure 3, only four developed economies were among the top ten internet users. Of the developing countries, Brazil, India, Mexico and Nigeria had a growth rate of internet use of between 3.5% and 6% between 2012 and 2015, while overall growth rate seemed much slower in developed economies; except for Japan. Nearly 90% of the 750 million people who went online for the first time between 2012 and 2015 were from developing economies; in fact, the most significant number came from South Asia, India (178 million) and China (122 million). Users in other developing economies such as Bangladesh, Iran, and Pakistan have also been using the internet for the first time in the last three years. However, in Brazil and China, more than 50% of the total population uses the internet, while in India only a quarter uses it. In 2017, UNCTAD announced that the next billion internet users would come mainly from developing economies and the LDCs.

Figure 3: Top 10 Developing and Developed Economies by the Total Number of Internet Users in 2015 and Growth Rate of Multiple Users, 2012-2015



Source: Information Economy Report UNCTAD (2017)

The spread of the internet in developing economies was linked to promises of economic and social development and positive changes in the social and political participation of disenfranchised (Albirini, 2008; Wheeler, 2004). Also, in developing economies, the internet can generate enormous economic benefits for predominantly Western technology industries and strengthen the relationship between Western economies and their counterparts in developing economies (Harvey, 1983). However, e-commerce via the internet was seen as an extremely positive development for developing economies as well as Western economies. For example, the United Nations (2000) High-Level Panel on Information and Communication Technologies concluded that when companies from developing countries were connected to global networks, they should be able to compete with other companies in a more equitable way in the world markets (Mansell, 2001). Finally, the internet approach in developing economies was critical because of the problem of their limited use compared to developed economies

2.1.5 Internet in Pakistan

The internet has been seen as an essential tool and global resource for developed economies; as a business and social tool and as a passport for most emerging economies, including Pakistan. This internet tool is responsible for equitable participation as well as for the development of the world of education, economic policy and security and social sectors

and to provide the digital platform for many organisations, companies, governments and agencies to allow the free flow of information and to share ideas and knowledge at the international level. This internet revolution has profoundly affected the functioning of the world – especially developing economies – and transformed it into an evolving information society (Shafique & Mehmood, 2008).

In Pakistan, today, the internet is a vast network of ICT made up of millions of computers allowing continuous communication throughout the world. This was only possible from the mid-1990s and even then, computer sales were limited. The Pentium 1 with Windows 95 was considered a luxury, an advantage for the rich communities in the country with a remote connection (Dawn, 2010). In 1993, the internet was introduced in the country in the form of USENET and Imran-Net newsgroups. In the same year, the first dial-up connection in the country was officially launched in the capital city of Islamabad with the support of a United Nations Development Programme (UNDP) funded project called the Sustainable Development Networking Programme (SDNPK). The primary function of the SDNPK was to provide dial-up email services to the general public and to facilitate educational projects related to government, sustainable development, NGOs and to other regions of Lahore, Karachi and Islamabad. The size of the SDNPK subscriber base proliferated, and the number of customers from other cities increased as the cost of dial-based email communication was cheaper than that of other international services such as faxing or dial-up services. The SDNPK project was supported by UNDP funding for several years, and the project activities were extended to other cities in the country such as Karachi, Lahore and Peshawar, where the nodes were established. However, in 1995, the project lost its charm in the country after the arrival of many Internet Service Providers (ISP) (ISPAK, 2014).

Between 1995 and 1998, the leading entrepreneurial ISP companies such as Digicom, PAKNET and Comsats launched online internet services offering internet access to many businesses and the general public in three cities of Pakistan (Karachi, Lahore and Islamabad) with an available speed of 14.4kbps to 64kbps at a dial-up price of PKR 100 per hour (ISPAK, 2014). In 1999, the government officially began to grant licences to commercial ISPs in the country. By mid-1999, these licenses had been issued to one hundred ISPs, and fifty of them had started working to provide broadband internet access to many business and home users in different cities in Pakistan. In 2002, Micronet Broadband launched the first broadband DSL internet in three cities in Pakistan: Karachi, Lahore and Islamabad, with better cables, better services, and customers simultaneously using the telephone and internet without telephone lines (Dawn, 2010). Later in 2002, the first broadband connection was secured in Pakistan. The projected number of broadband

subscribers in Pakistan for 2009 was 643,892, and this number was expected to reach 1,213,000 in 2012 (Pakistan Telecommunications Authority (PTA), 2011). However, Pakistan has not reached the expected numbers and still and does not have the required telecommunications infrastructure to deliver high-quality broadband service via various platforms (Manzoor, 2013).

Today, many renowned service providers such as NayaTel, Pakistan Telecommunication Limited (PTCL), Wateen, Witribe, LINKdotNET, Qubee and Comsats Internet Services provide high-speed DSL services to many customers in the country at speeds of up to 100mbps at the price of PKR 6,500 per month (1 British Pound (GBP) = 202 PKR, Oct 2019) (PTCL, 2018; Saleem, 2015). At present, the GoP is focused on providing quality ICT services, ICT development and a conducive regulatory environment in the country. In the financial year 2018–2019, the GoP decided to spend PKR 7 billion on ICT-related development and non-development projects and this is expected to reach PKR 10 billion in 2020 (Ministry of Finance, 2018). However, the Ministry of Science and Technology informed the cabinet committee and the secretary that the current lack of human resources (HR) would make it difficult for them to use the budget effectively to its full capacity (PTA, 2018).

Thus, Pakistan was in the early stages of ICT development and the government was striving to create a dynamic and concrete approach to modernising the lives of all citizens (Ud Din, Xue, Abdullah, Shah, & Ilyas, 2017). In this regard, the government and the PTA – as a local business institute – have taken a number of initiatives to promote ICT-related activities and to facilitate access for the majority of population. Actions include the implementation of 5G policies, initiatives to increase the maximum speed of broadband, licensing of third party service providers to increase financial inclusion, Device Identification Registration Blocking System, No Objection Certificate Online Portal for the import of handsets, e-vision Pakistan 2020 and online interactive distance learning initiative (Ahmed et al., 2013; PTA, 2011). While facilitating the ICT industry, the GoP announced for the first time that their Digital Policy (2017) envisioned Pakistan becoming a strategic enabler for an accelerated digitisation ecosystem to develop a knowledge-based economy and stimulate socio-economic growth. The teledensity rate grew by 12.1%, reaching 70.4% in the 2016 fiscal year. The key driver for this increase was the growth in the number of cellular subscribers. Similarly, the number of broadband users reached 40 million in August 2018, representing growth of greater than 32% over previous years between 2015 and 2018 (IWS, 2018). However, some recent studies (Haider, Shuwen, Lalani, & Mangi, 2015; Ud Din et al., 2017) have indicated that the growth of ICT-related projects in Pakistan is still in its initial phase.

According to the latest statistics from IWS (2018), in Asia, Pakistan's position is far behind when compared to other developing and developed countries regarding internet usage; at only 2.2% (as shown in Table 2). Pakistan is the lowest internet user (2.2%) in the Asian region (49%) followed closely by South Korea (2.3%), with the largest internet user in Asia being China (38.9%). Pakistan is the seventh largest country in the Asian continent behind India (22.4%), Bangladesh (4.3%), Indonesia (7.1%), the Philippines (3.2%), Vietnam (3.1%) and Thailand (2.8%). According to the latest Pakistani population statistics, the total number of internet users in the country is much lower than that of neighbouring countries, and the high rate of non-users is alarming for the country and its government. Although the growth rate is very high compared to previous years in the region, the internet penetration rate is still minimal (22.2%) compared to other countries in the Asian region, which is alarming for commercial institutions who are responsible for providing technology services to many business and home users in the country. This internet penetration rate reflects the level and general state of ICT infrastructural services provided to individual users as well as to the business sector.

Table 2: Statistics on Internet Use in Pakistan

User in Asia %	2.2
Year	2018
Total Population	200,813,818
Internet Users	44,608,065
Penetration (Population %)	22.2
Non-users (Internet less)	156,205,753
1 Year User Change	10,265,665
Internet in Asia %	49%

Source: IWS (2018)

2.2 Background to E-commerce

The internet is an essential communication tool and source of information, and is perhaps the most widely used tool of all time. Today's digital revolution, which involves the internet and the global use of websites, has opened the doors to e-commerce. This type of trade

depends mainly on the use of the latest ICT technologies and infrastructure units to expand the global market from east to west and across all continents.

2.2.1 The Definition of E-commerce

The term e-commerce has become increasingly popular in our daily business and personal activities, yet it remains a relatively new concept for most developing economies. A review of the literature has found no agreed standard definition to explain this new concept but a brief explanation of e-commerce was described earlier in Chapter 1. This section provides detailed definition of e-commerce as described by many authors. According to Laudon and Laudon (2014, p. 87), e-commerce refers to the use of internet-based digital technologies to execute key business processes in various organisations. However, more recently, Birgul and Sona (2017) have argued that e-commerce is not just a web-based sales method; it is a transformation initiative for organisations that want to survive in today's digital world. While the Economic Encyclopedia (2002) defines e-commerce as an internet business, it means the purchase and sale of various goods and services via the internet, as well as the transfer of funds via banking channels and data to carry out these transactional activities. Also, e-commerce refers to the sale of physical products online, but it can also describe any commercial transaction via the internet. Thus, e-commerce could have a broad and narrow definition, as explained by many researchers in various stages and studies. For example, Rastogi (2015) defined e-commerce as the use of information technology and transactions among its stakeholders and competitors in an organisation.

Similarly, Basu, and Muylle (2011) defined e-commerce as an electronic transaction or any transaction received via internet technology. This includes the sale of different goods and services; online orders received by email or in digital format on which it is not necessary to make payment through the online channel. Turban et al. (2010) gave a more precise definition of e-commerce as “the process of buying, selling, transferring and exchanging different products and/or information using various computer systems related to ICT units, mainly extranet and intranet networks (internet)”. This definition is similar to that of Huseynov and Yildirim (2016), who defined e-commerce as the online process of business management through different computer networks. Therefore, e-commerce concerns different companies of different size, structure and location, which carry out their activities mainly based on a network of ICT; in particular, the internet (Ibrahim, Turyakira, & Katumba, 2018). However it is specifically defined, e-commerce is a modern way of doing business that meets the needs of local organisations, merchants and consumers in different business environments, to reduce costs and improve the overall quality of goods and services by

maintaining confidence and increasing delivery time to provide better customer service at any time in any location (Nisar & Prabhakar, 2017).

This study uses the definition of e-commerce defined by Turban et al. (2010), and used by the OECD (2017a), and UNCTAD (2017). That is, e-commerce as a business process involves the purchase and sale of various products (including physical goods, products or digital services) traded over ICT computer networks. Other technologies such as the internet and the exchange of electronic data devices such as personal or official computers, tablets and telephone or mobile devices can also be used for these purposes (ADB, 2018).

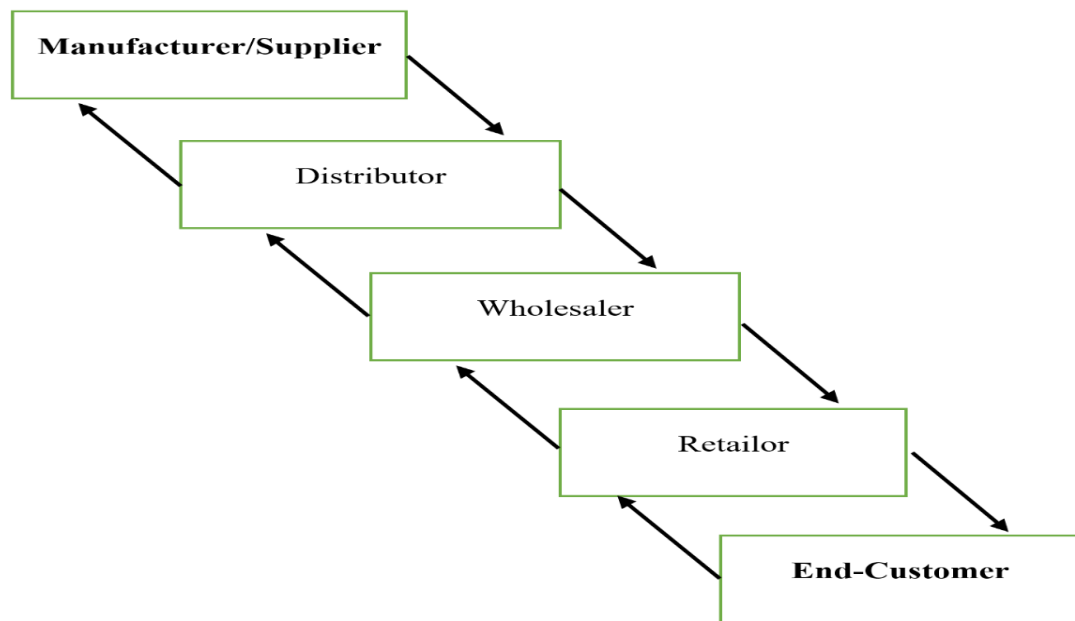
2.2.2 History of E-commerce

IBM was one of the first information technology companies to use e-commerce when it launched a thematic campaign developed around the term in 1997 in the USA. Until then, the most used slogan was e-commerce (Joseph, 2015, p. 7). Before explaining the history of e-commerce, it is essential to distinguish between the two terminologies of commerce: traditional and e-commerce. After this, the initiatives taken by the internet to develop e-commerce worldwide are considered.

2.2.2.1 Traditional Commerce

Traditional commerce is a part of the trade in which the organisation focuses primarily on the exchange of products and services. It includes all of these activities in one way or another between two or more parties and channels promoting exchange to complete the transaction. In traditional commerce, many channels have been involved in selling the products and services before they reach their destination (end customer) (Sun & Finnie, 2004, p. 45). In recent decades, traditional commerce has also been known as the “barter system”, a traditional business that treats the customer face-to-face in an office or store that the organisation owns and rents to complete the transaction. However, nowadays, most of the traditional commercial elements are altered and more physical. A traditional commercial process involves the sale of different goods and services that are transferred directly from the manufacturer and/or supplier to the distributor and then sold to the local wholesaler or retailer in the area to be sold to the end customer. During the traditional business process, each broker in each step adds the cost and profit margin to the price of the good and the services. Before reaching the final customer, the price of goods and services are therefore higher than the initial price identified by the manufacturer or supplier. Finally, the speed of delivery can take longer than expected due to the different stages of transport and distribution channels from one place to another (Joseph, 2015, p. 145). See Figure 4 for the traditional commerce selling chain.

Figure 4: Traditional Commerce Selling Chain



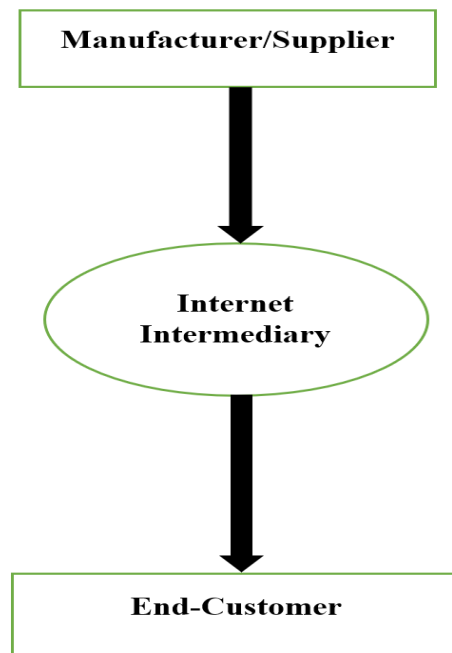
Source: Sun and Finnie (2004, p. 45)

2.2.2.2 E-commerce

On the other hand, many organisations have begun to use Electronic Data Interchange – internet and email systems as applications to sell goods and services – a practice called e-commerce that has developed the new sales concept of direct or digital marketing. Digital or direct marketing has a similar meaning to e-commerce (Chaffey & Chadwick, 2016, p. 13). In the e-commerce process, products and services can be provided directly by the manufacturer or supplier to the end customer, thus reducing the different links in the traditional selling chain. One of the exciting differences between e-commerce and traditional selling is that potential e-commerce consumers often associate online shopping with “offers” or at lower prices, due to auction sites and the popularity of e-commerce facilitating cross-references through search engines. Unlike traditional selling, the advantage of e-commerce is that consumers have immediate access to information on the manufacturer's website as well as online reviews. This is due to internet technology that serves as an intermediary between the seller and the buyer (Wysocki, 2009). With e-commerce, manufacturers and/or suppliers can save time between the production and consumption of goods and services. Also, they can reduce the cost of delivering transport and distribution channels between brokers (Sun & Finnie, 2004, p. 48). With the benefits of online sales, manufacturers/suppliers have reduced the price of goods and services and improved their delivery by communicating online with customers around the world more directly through

internet-based software, and with more visibility than ever (Nisar & Prabhakar, 2017; The Economist, 2004). See Figure 5 for the e-commerce selling chain.

Figure 5: E-commerce Selling Chain

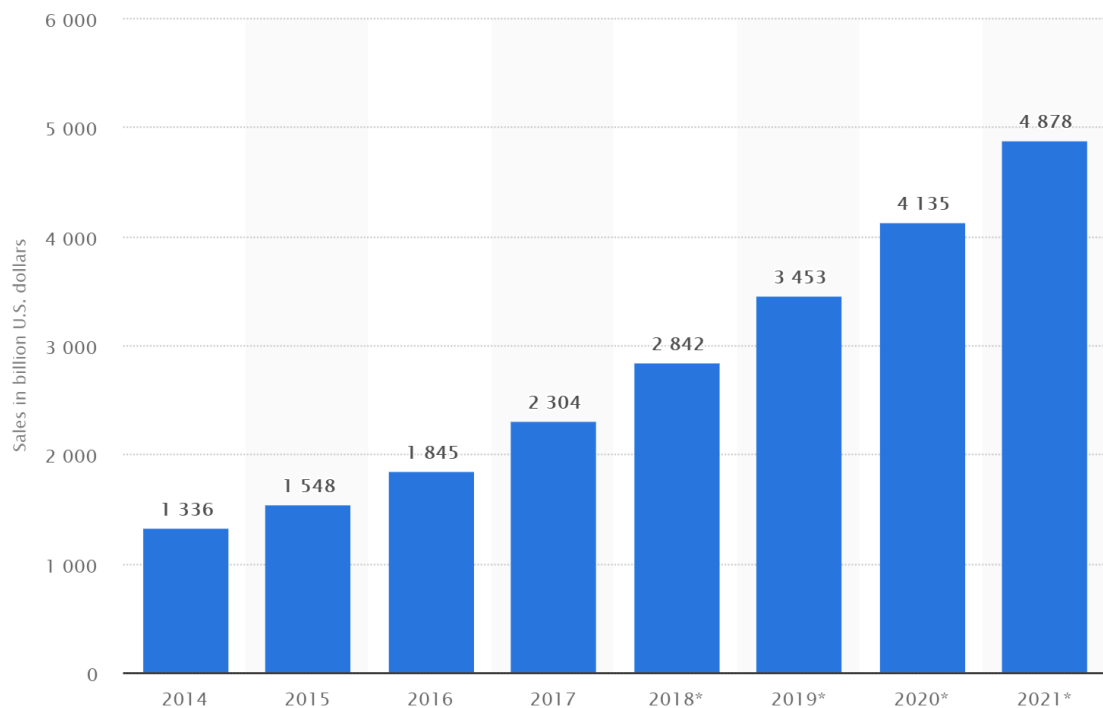


Source: Sun and Finnie (2004, p. 48)

E-commerce began in the US in 1995 when the internet portal "Netscape.com" first published web advertising and revealed the idea that the internet could be used as a platform for advertising and sale (Birgul & Sona, 2017). After the birth of e-commerce, the term was used for all commercial transactions relying mainly on ICT tools such as the internet and the web (Laudon & Laudon, 2014). In the relatively few years since e-commerce began, its use for retail trade has increased from about USD \$95 billion in 1995 to USD \$1.2 trillion in 2003. According to Statista (2019a), global e-commerce sales were worth USD \$2.8 billion between 2014 and 2018 and nearly 1.79 billion people worldwide purchased products online in 2018 using the internet; representing 11.5% of total retail spending since 2015 (see Figure 6).

E-commerce revenues are expected to reach USD \$4.88 billion in 2021 and in the period 2019–2021, more than 2.14 billion people worldwide are expected to purchase goods and services online. This compares to 1.79 billion global digital buyers in 2018, representing the fastest growing form of e-commerce in the world (Statista, 2019a).

Figure 6: Retail Sales by E-commerce Worldwide from 2014 to 2021 (in USD billions)



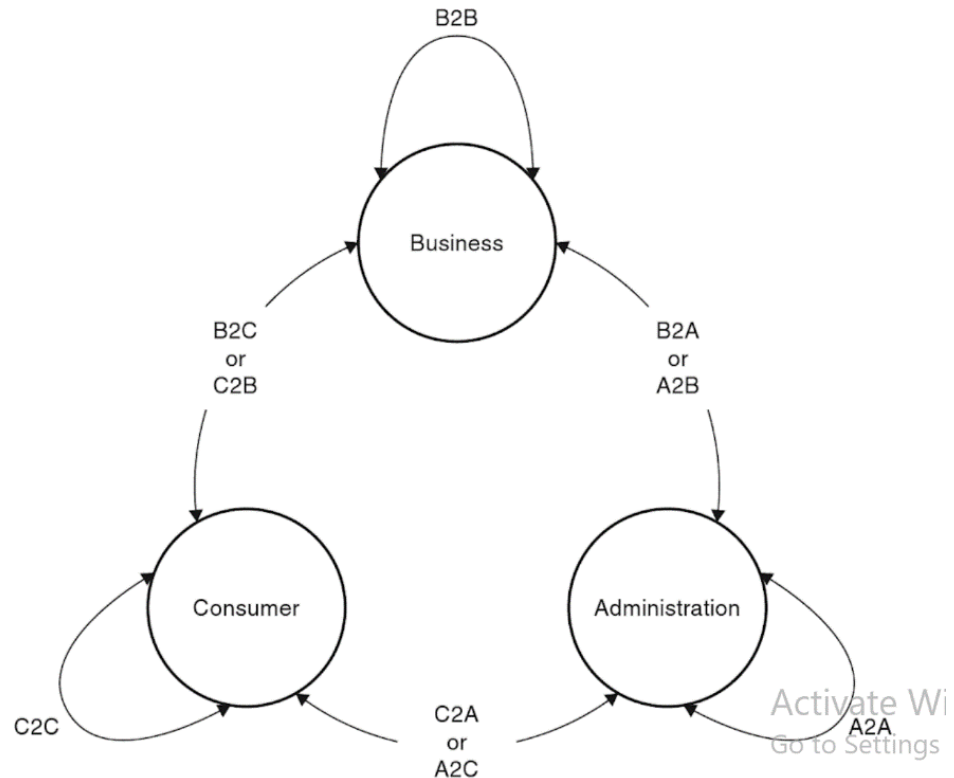
Source: Statista (2019a)

2.3 E-commerce Transaction Models

The Timmers (1998) e-commerce model proposes the web-based business concept as a business model that supports the network and covers the diverse needs of the business for the transformation of traditional business environments. The Timmers model focuses on the company's value chain, including a description of the potential benefits to the different commercial actors that promote its (company) products and services and the most tangible benefits to the consumer. It consisted of lower prices and better information because of the openness and connectivity of the internet. After the review of previous literature studies including Z. Sun and Finnie (2004) and Anumba and Ruikar (2008), it has been found that e-commerce models can be divided into the following categories, as illustrated in Figure 7:

- Business to Business (B2B)
- Business to Consumer (B2C)
- Consumer to Consumer (C2C)
- Administration to Administration (A2A) or Consumer to Business (C2B)
- Business to Administration (B2A) or Administration to Business (A2B)
- Consumer to Administration (C2A) or Administration to Consumer (A2C)

Figure 7: E-commerce Transaction Taxonomy



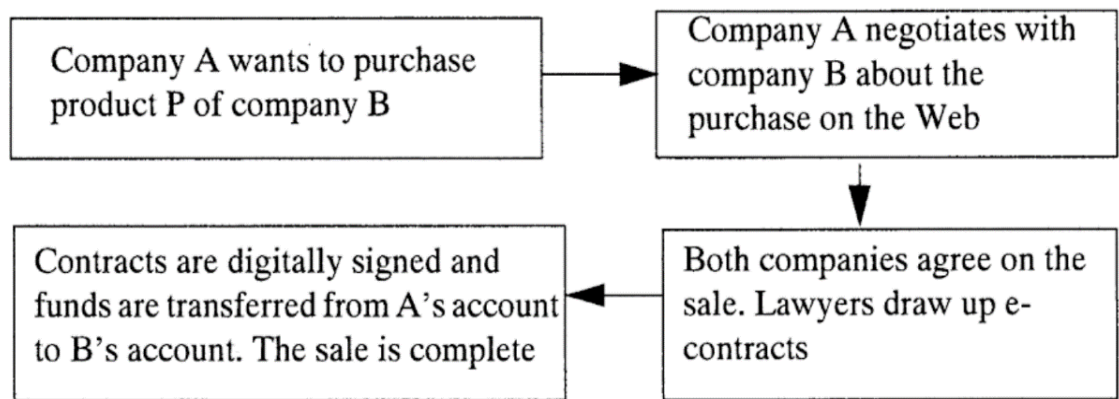
Source: Anumba and Ruikar (2008, p. 8)

Based on the transaction mode, companies in most developing and developed economies are increasingly implementing the e-commerce framework in three classes of applications: B2B, B2C and C2C. The first two have attracted much attention lately and have become the main forms of e-commerce when compared to the last, as discussed by Sun and Finnie (2004, p. 57).

2.3.1 B2B E-commerce

The B2B e-commerce model is an electronic means of conducting transactions between two or more business. B2B integrates everything from manufacturing to service providers (Anumba & Ruikar, 2008). In the B2B model, companies buy the products and trade via web-based applications. They can use their agents/smart agents during trading and after careful negotiations, they agree to the sale. The lawyers will then establish digitally signed electronic contracts. Finally, companies transfer funds via bank channels and the transaction is concluded (Sun & Finnie, 2004), as shown in Figure 8.

Figure 8: B2B E-commerce Model



Source: Sun and Finnie (2004, p. 58)

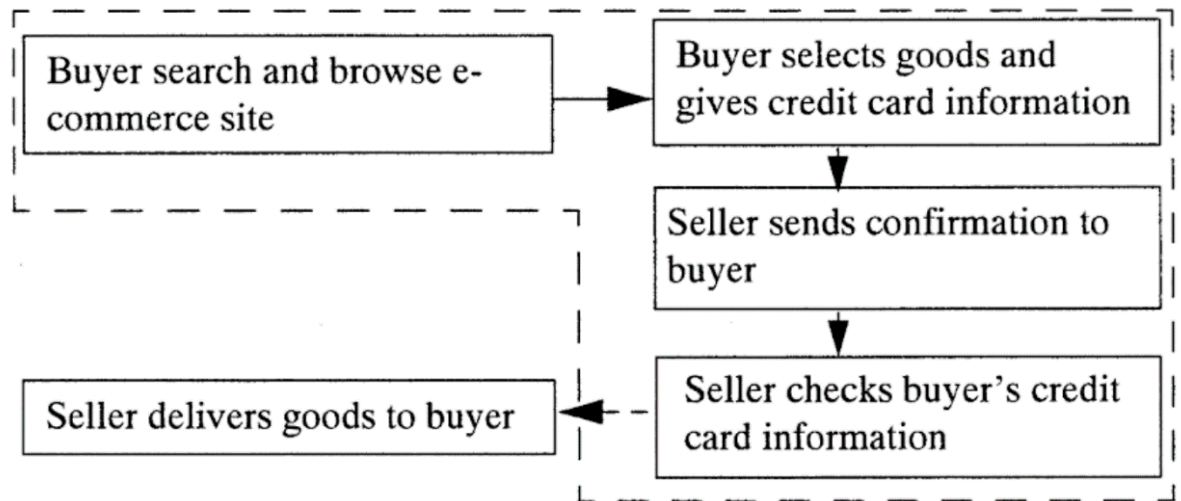
Helgueros (2012) considers B2B as the set of actions that can be performed in two organisations, such as supplier and payment management, purchases and other tasks related to service and support. This method accounts for 80% of e-commerce in recent years. Some of the benefits of this type of e-commerce used by organisations are to improve communication within the organisation, reduce transaction costs and increase the efficiency of business processes (Sun & Finnie, 2004). Most experts, including Bidgoli (2002) predicted that, in the future, B2B e-commerce would grow faster than traditional B2C commerce, as B2B e-commerce has allowed many companies to develop and improve their global productivity in a limited time. However, Zhao, Wang, and Huang (2008) argued that in some LDCs, B2B e-markets were still in the early stages of development due to the lack of basic ICT infrastructure units preventing the development of electronic markets.

2.3.2 B2C E-commerce

In the B2C e-commerce model, commercial transactions are made directly between a business and its customers (Chaffey, 2002). When applied to the retail sector, for example, a B2C method will be similar to the traditional method. The main difference lies in the means used to conduct business, that is the internet and more communication through digital channels such as internet messaging (email) and telephone or mobile devices. This embodiment of certain commercial transactions assumes that the potential consumer has access to the internet and necessary technologies (Anumba & Ruikar, 2008). The B2C model is more developed in e-commerce, and its applications provide a business interface directly to consumers. One of the best examples of B2C applications is a retail website that presents the commercial products or services that the consumer can buy directly. Examples from the UK include Amazon (www.amazon.co.uk), Argos (www.argos.co.uk) and eBay

(www.ebay.co.uk), who offer their products and services directly to consumers online. These companies offer a variety of electronic and digital devices online to make it easier for online customers (Z. Sun & Finnie, 2004). The basic B2C e-commerce model is presented in Figure 9.

Figure 9: B2C E-commerce Model



Source: Sun and Finnie (2004, p. 58)

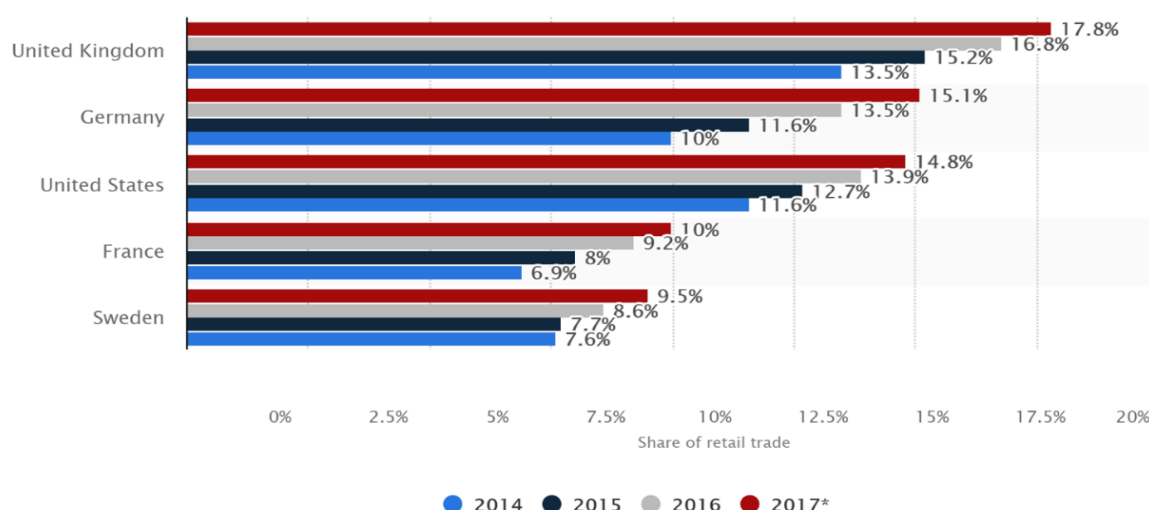
One of the benefits of e-commerce sites was the availability of physical space. Thanks to e-commerce, traditional commerce has developed by offering different products and services through the electronic channel (Bidgoli, 2002). Many B2C providers have had many successes online and have sold their products directly to consumers who may be interested in purchasing unique products online. By selling directly to customers or reducing the number of intermediaries, firms can earn higher profits and – at the same time – charge lower prices (Laudon & Laudon, 2004). With B2C e-commerce, Elliott (2007) examined global e-commerce from a customer perspective, as most customers can easily find the best online offers, leverage different brands, and receive excellent customer service. Madlberger and Matook (2017) have also argued that with consumer interactions in e-commerce, companies could target more potential customers more effectively after obtaining personal information to develop direct marketing for customers and provide better service after sales services.

2.4 Growth of E-commerce in Developed Economies

After the first e-commerce software house was opened in Toronto, Canada, in 1988, by 2002, US-based e-commerce B2B firms accounted for almost 93% of all e-commerce and 16.28% of all commercial e-commerce transactions. While the total number of transactions between online and offline business declined in 2002, B2B trade grew at an annual rate of 6.1%. For B2C, total sales in the first quarter of 2004 accounted for 1.9% of total retail sales, nearly twice as many as in 2001. The annual growth rate of retail e-commerce in the US in the year to the end of the first quarter of 2004 was 28.1%, while the growth in total retail trade was only 8.8% in the same period (UNCTAD, 2004). It was noted that while e-commerce would have expected to continue its remarkable growth, it still represents only a small percentage of total e-commerce sales. The Census Bureau of the US noted that in 2002, electronic retail sales accounted for only 1.5% of total retail sales. However, studies have shown that e-commerce has become very important in some product categories. Total retail sales in 2004 increased by 7.8% ($\pm 0.3\%$) over those in 2003 and online sales in 2004 represented 1.9% of total sales. In the US, e-commerce sales were USD \$10.043 billion in the fourth quarter of 2001, an increase of 13.1% ($\pm 4.1\%$) over the fourth quarter of 2000. Further, total retail sales for the fourth quarter of 2001 were estimated at the USD \$860.8 billion, an increase of 5.3% ($\pm 0.6\%$) compared to the same period of the previous year (Gawady, 2005).

Over time, developed and advanced e-commerce economies have therefore shown a marked improvement in their respective economies for the growth of e-commerce (Anvari & Norouzi, 2016). The information economy report (UNCTAD, 2017) reported that e-commerce in developed economies, including the UK and the rest of the European Union (EU), the US and the rest of North America, the Australian region and most Asian economies, continue to grow rapidly and strongly. Unsurprisingly, the highest share of retail e-commerce sales (as of 2017) since 2014 belong to Western (as shown in Figure 10) and advanced American economies. However, online retail trade in the developing and advanced economies of Asia Pacific such as China, Japan, India, Brazil, South Korea, Malaysia and Thailand were also catching up (IWS, 2018). This is because the nature of e-commerce market in Asia is still very heterogeneous because of higher trading costs and heterogeneous market situations, but considered one of the most dynamic economies in the world for the growth of e-commerce (ADB, 2018; Rahayu & Day, 2015).

Figure 10: Retail E-commerce Sales as a Share of Retail Trade in Selected Countries from 2014 to 2017



Source: Statista.com (2019b)

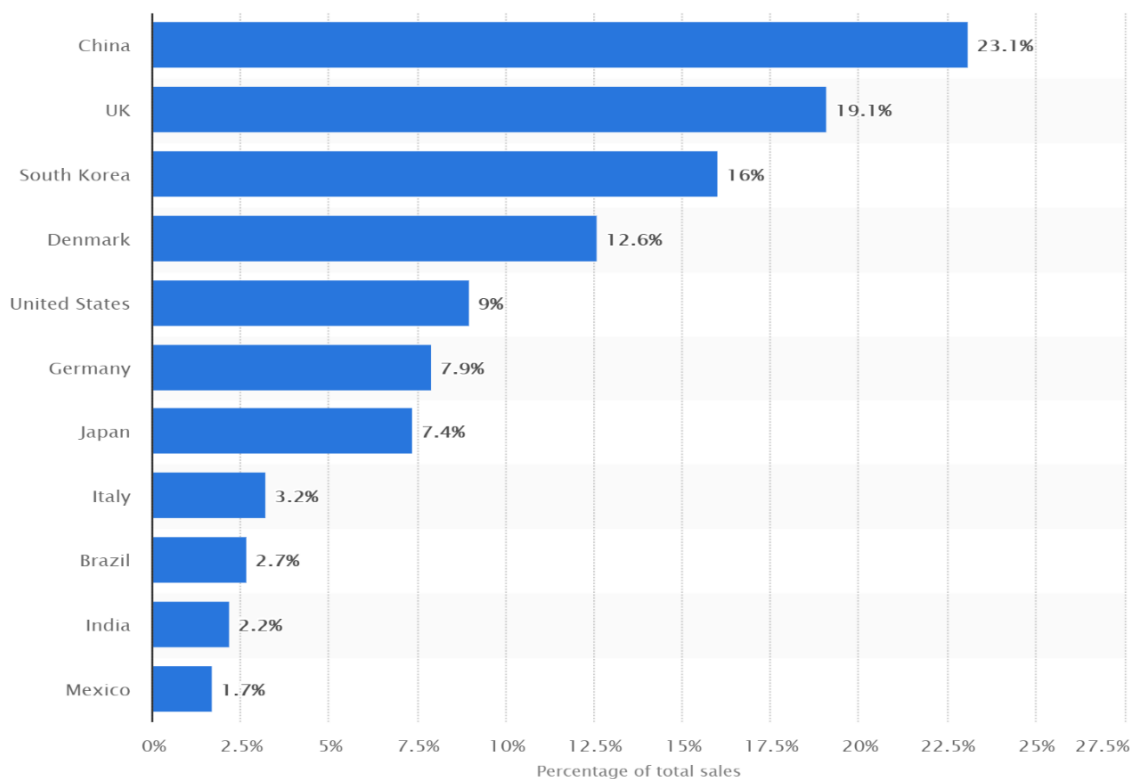
According to Statista (2019b), approximately 16.8% of retail sales in the UK were generated by e-commerce in 2016 and sales increased from around 1% in 2017 to 17.8%. This represented an expected GBP 67.38 billion in 2017. Data submitted by the Office of National Statistics show that monthly e-commerce sales in the UK peaked in December of each year due to the Christmas period and the new year and that in 2016, the growth of e-commerce retail sales exceeded sales in January 2017 by about GBP 560 million.

2.5 Growth of E-commerce in Developing Economies

E-commerce has grown considerably in recent decades and is expected to continue growing rapidly in the coming years. The International Telecommunication Union in Venezuela signed a funding association agreement between the World Trade Center and the secure internet key worldwide to finance e-commerce projects in most developing economies. The agreement aimed to develop E-commerce in developing economies by allocating USD \$2.7 million to a fund each year for the next three years. The purpose of the fund was to provide the latest e-commerce ICT infrastructural units and solutions related to the implementation and adoption of e-commerce in developing economies. In 2018, the bulk of the world's 1.79 billion digital buyers resided in developing economies. However, e-commerce in developing economies has expanded significantly, with fast growth documented particularly in Asian developing and advanced economies – China being a prominent example. As a country, it has emerged into the global and regional leader in B2C e-commerce sales (UNCTAD, 2015). In 2017, the e-commerce sales as a percentage of total retail sales in China were 23.1 % higher than other developing, and developed

economies including (as shown in Figure 11) the UK 19.1%, South Korea 16%, Denmark 12.6% and Germany 7.9%. Further, e-commerce sales in the US accounted for 9% and India 2.2% of total retail sales during that year (Statista, 2019c).

Figure 11: Online Sales as a Percentage of Total Retail Sales in Selected Countries in 2017



Source: Statista.com (2019c)

The US was by far the largest e-commerce market in 2015, with combined sales of more than USD \$7 billion, followed by Japan (USD \$2.49 billion) and China (USD \$1.91 billion) (as shown in Figure 12). While the US was \$6.4 billion ahead of the B2B market, it was just behind China in the B2C segment (USD \$6.7 billion in China and USD \$6.12 billion in the US).

Figure 12: Top 10 Economies by Total, B2B and B2C E-commerce, 2015

	Economy	Total		B2B		B2C
		\$ billion	Share in GDP (per cent)	\$ billion	Share in total e-commerce (per cent)	\$ billion
1	United States	7 055	39	6 443	91	612
2	Japan	2 495	60	2 382	96	114
3	China	1 991	18	1 374	69	617
4	Republic of Korea	1 161	84	1 113	96	48

Source: Information Economy Report, UNCTAD (2017)

In general, B2B firms accounted for about 90% of the total in this group of economies. The total value of e-commerce was 34% of the total GDP of these economies; in Japan and the Republic of Korea, it exceeded 60%. Based on unofficial data only for the B2C market, the Russian Federation ranks 12th and India is 13th (UNCTAD, 2017).

B2B and B2C e-commerce have brought potential benefits to many organisations, such as increased business participation in international markets with increased access and reach, increased efficiency of domestic and international markets, reduced transaction costs, job creation in the sector of ICTs and more competitive business through online shopping and sales. New data on the European economies presented in the Information Economy Report (UNCTAD, 2017) highlight that, thanks to the internet sales of many companies, productivity has increased significantly and this further indicate that these effects are more critical for SMEs and service industries.

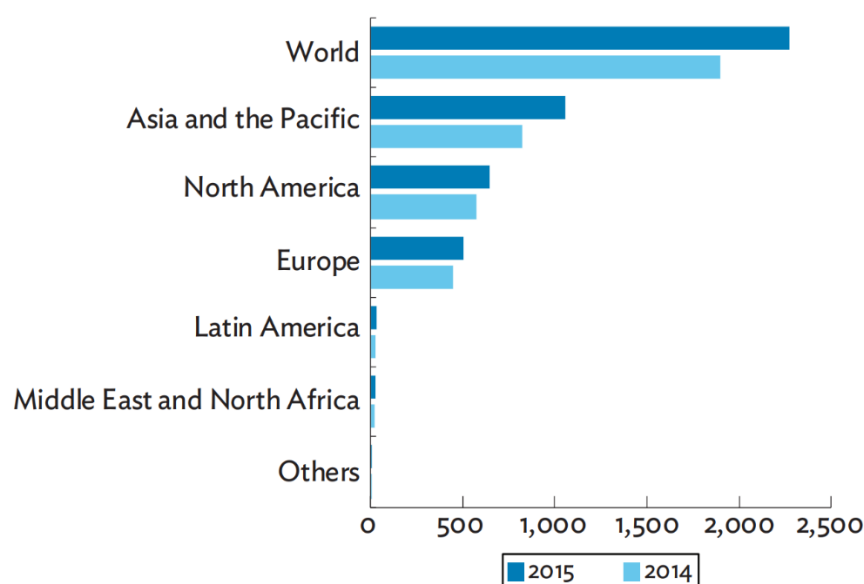
The Information Economy Report (UNCTAD, 2017) also mentioned that while e-commerce offers potential benefits to many businesses, obtaining the benefits of e-commerce is not an easy procedure and it poses many challenges to those in developing and LDCs. Lawrence and Tar (2010) conducted a study on barriers to e-commerce in developing economies. The study showed that while e-commerce could improve the efficiency and productivity of companies, doubts persisted about its usefulness for developing economies. The lack of ICT infrastructure, national social and economic policies and national ICT strategies have created a major obstacle to the adoption and development of e-commerce in developing economies. Further, in 2015, Alyoubi found that developing economies face the digital divide mainly because they lack the necessary intellectual capital. The government also plays a vital role in shaping state policies, in particular laws that affect the adoption and growth of e-commerce in developing economies. A recent study by Lim et al. (2018) found that the adoption of e-commerce in companies in developing economies was weak due to several factors. The results showed that perceived barriers, organisational capacity and competitive pressure affect the majority of SMEs in Malaysia. In the discussions on developing economies and the growth of e-commerce as part of the World Summit on the Information Society process, it was found that developing economies needed to evaluate and apply different models related to the governance of the internet, in particular with respect to its impact on the ability of their business to benefit from the adoption of e-commerce practices. A sustained capacity-building effort in the formulation of internet policies is also needed to ensure that most developing economies can participate effectively in the management/governance systems that may emerge from that process (UNCTAD, 2004).

2.6 E-commerce Revolution in Asia and the Pacific

Asia is considered one of the fastest growing regions in the world and represents the bulk of the global B2C e-commerce market. The total GDP size of e-commerce was 4.5% in the Asia-Pacific region at the end of 2015. It is recognised that e-commerce in the Asia-Pacific region is helping many small, medium, and large organisations to expand business activities towards globalisation and competitive in an international market. E-commerce has also improved the overall economic systems of many economies by creating many industrial jobs in developing and LDCs, allowing them to reduce development gaps and increase inclusion; whether demographic, economic, geographical, cultural or linguistic. It also helps reduce the gap between rural and urban areas. However, the e-commerce market in Asia remains very heterogeneous (ADB, 2018).

According to the survey of the E-commerce Foundation (based in the Netherlands), in 2015 the Asia-Pacific region accounted for more than USD \$1 trillion of the USD \$2.3 trillion of global e-commerce. Also, the North American region had the second largest share of e-commerce with a total turnover of USD \$644 billion. Compared to developed economies, in 2015 the fastest growth in e-commerce (28%) was observed in the Asia-Pacific region (Latin America) compared to global e-commerce growth of 20% (Ecommerce Foundation, 2016) (see Figure 13).

Figure 13: Size of B2C E-commerce by Region (in USD billions)



Source: Ecommerce Foundation (2016)

In relation to economic activities, e-commerce has also played an essential role in the development of economic and financial activities, which were developing rapidly in the

Asian and Pacific region. Globally, the share of e-commerce in GDP has risen from 1.3% in 2011 to 3.1% in 2015. This rapid growth is not only contributing to the GDP of established major economies, but also to those of countries within Asia and the Pacific. At the end of 2015, e-commerce accounted for 4.5% of GDP in Asia and the Pacific; the highest of any region in the world.

In comparison, the share of e-commerce in regional GDP was respectively 3.1% and 2.6% in North America and Europe. E-commerce was even lower in Latin America (0.8% of regional GDP) and the Middle East and North Africa (0.7%) (ADB, 2018). The Asian and Pacific economies also performed well regarding the size of the internet retail market, a subset of consumer e-commerce. By the end of 2017, the combined internet retail market of the Asia-Pacific economies was already ahead of those of North America and Europe. Euromonitor International predicts that by 2021, the global internet market share of the Asian and Pacific economies will reach 48.5%, compared to 47.2% in 2017 (Kshetri, 2018).

The economies of Southeast Asia include Hong Kong, China, Japan, the People's Republic of Korea and Taipei, and are considered some of the largest and most advanced e-commerce markets in the world (Kshetri, 2018). According to E-commerce EU (2015), China was the most extensive e-commerce market in the world, while Japan was the second largest electronic market in Asia and the fourth largest in the world. Finally, Korea was the third largest retail e-commerce market in Asia and the seventh largest in the world (eMarketer, 2015).

In South Asia, India dominates Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka in the sub-regional e-commerce market; a market which is driven by the size of a country. According to the report of the National Association of Software Services Companies, the size of the e-commerce market in India was estimated at USD \$33 billion for the fiscal year 2017 (The Economic Times, 2017). It is expected that the country will continue to grow rapidly in e-commerce in the future and Morgan Stanley Investment Bank has announced that by 2026, India's e-commerce is expected to reach USD \$200 billion (Bansal, 2018).

In 2016, Google and Temasek estimated that users in Southeast Asian economies – including Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam – had 260 million internet users and were expected to reach 480 million by 2020. However, the following year, Wenyu (2017) estimated that only 3% of the 560 million people living in Southeast Asian economies had made purchases online. In the Southeast region, Singapore has the highest spend on e-commerce per capita at three times more than in Thailand, and mobile commerce spending is eight times higher than in Malaysia. Most recently, Kshetri (2018) found that while per capita e-commerce spending in Indonesia was

lower compared to other economies, the economy was expected to become the third largest e-commerce market in the Southeast Asian region. According to recent estimates, the Indonesian e-commerce market has grown between 60% and 70% annually since 2014 and was expected to reach USD \$8 billion in 2016 and is expected to reach USD \$60 billion by 2020 (Macquarie Research, 2017).

E-commerce in the Asia-Pacific region varies considerably regarding its use for business improvement and market development. As established, the region is home to the world's largest e-commerce markets: China, Japan, the Republic of Korea and Singapore, who are among the most developed economies in the world. However, at the same time, the ADB (2018) has recently reported that e-commerce is virtually non-existent in some of the less developed economies of Asia and the Pacific, and that this is due to a number of factors. These include the lack of availability of the latest ICT infrastructure units and services (ADB, 2018), the lack of internet access in the less developed economies of Asia, inadequate online payment methods (Aziz, 2017) and, above all, lack of confidence in the participants because some could use e-commerce but do not want to join the e-commerce market. The reason given was a reluctance to use the internet for financial transactions (Paypal, 2017; Razdan, Das, & Sohoni, 2014); reflecting the low level of e-commerce in the Asian region.

2.7 Growth of E-commerce in Pakistan (Southeast Asian Economy)

After the introduction of the internet to Pakistan in 1995 and the potential benefits of its use as a new technology for society, the GoP decided in 1999 to provide internet access to the country's ISPs to configure, manage and transfer data to the local community. In 2002, the first broadband internet connection was set up in the country to transmit the internet and understand what the internet could do for individuals and business (Dawn, 2010). Until 2009 – the year of India's 3G launch – Pakistan was expected to have a historically higher internet penetration rate. 3G boosted internet use in India and e-commerce grew exponentially. However, India was not the first country in the region to launch 3G; that was Sri Lanka in 2006. However, due to certain political and governmental factors, the PTA launched a 3G network in 2014 after the approval of the government and parliament.

Although Pakistan adopted 3G technology very late, the potential of e-commerce associated with a higher internet penetration rate was immense (Khaskheli & Jun, 2016). These trends of exponential growth in recent years, with USD \$30 million currently invested in online purchases, give a very positive picture of the future and it was expected that the size of the e-commerce market in Pakistan would reach more than USD \$600 million by 2017. New foreign companies, such as OLX (the online firm Naspers of South Africa) and

online companies such as Asani (an online firm venture by Schibsted, Norway) and Rocket Internet (an internet company based in Germany) have entered the country to take advantage of the potential of e-commerce as an emerging e-market. With the collaboration of foreign companies and online business, many e-commerce stores have been opened in the country, including Daraz.pk, Kaymu.pk, Shophive.com, Pakistangrocery.com and Doorstep.com, and these have contributed considerable capital (Sheikh, Abbas, & Mehmood, 2015). As a result, existing companies have experienced unprecedented growth rates, never before seen in the country (Khaskheli & Jun, 2016).

According to the SBP, the growth of e-commerce in the country has almost doubled in the fiscal year 2017–2018, since digitisation has allowed the service sector to increase its contribution to the GDP from 52% to 60%. B2C trade was also growing rapidly, while large-scale B2B investment was still in progress. Sales of local and international e-commerce merchants reached PKR 40.1 billion in the fiscal year 2018, compared to PKR 20.7 billion in 2017, which represents an encouraging growth of 93.7%. The main participants in B2C e-commerce were local and national retailers (online retailers, online marketplaces, online information and financial intermediaries, electronic transport companies and social media vendors) that use different online sales channels and are therefore responsible for such growth. Until recently, most retailers have worked via brick and mortar (only physical sales), but now offer products on their websites, for example, Daraz.pk, Mega.pk, FoodPanda, PakWheels, Rozee.pk and Careem, Bykea and Uride. Most B2C players are also active on social media networks through web 2.0 platforms such as Facebook, YouTube, Twitter and Instagram. As report in the First Quarterly Report of the SBP for the fiscal year 2018 (SBP, 2018), the advantage of selling through web 2.0 platforms is that customers book their product orders after communicating through the retailer's "page" and checking the previous "revisions" on the product and the retailer, which helps maintain trust between the buyer and the seller. E-commerce among retailers and buyers in Pakistan is growing rapidly, but the ADB (2018) reported that in many LDCs and developing economies in Asia, e-commerce between companies is extremely weak. For example, in 2017, Pakistan had only 400 e-commerce providers, or approximately 0.44% of its 900,000 physical stores (Aziz, 2017).

Therefore, Ahmed (2015), Aziz (2017) and Hanif (2018) have all argued that despite the growth of the e-commerce industry in the country, much more needs to be done to reach its real potential and compete with other large economies in the region. Several factors have significantly changed e-commerce trends in recent years during the growth of e-commerce in Pakistan. As previously established, one of the main obstacles was the internet penetration rate in Pakistan. After the launch of the 3G network in 2014, the

internet penetration rate was 13.8% and was expected to grow rapidly in the coming years, but by 2018 this rate was only 22.2% (an increase of 8.4% since 2014). By 2018, approximately 22% of Pakistan's total population did not have sufficient internet access. (IWS, 2018; Statista, 2019a). Electronic payment methods were also developing rapidly in the country, which means that in the future, e-commerce websites will have enormous potential. At present, due to the lack of adequate online payment methods in the country, the proportion of cash on delivery or offline cash payment transactions was between 80%–95% (Hanif, 2018; Shaffi, 2017). This figure is very high when compared to other economies in the region (as shown in Figure 14).

Figure 14: Cash on Delivery Transactions - Some Asian Economies (% of Total Online Transactions)

Economy	Year	% share
Bangladesh	2016	90.0
People's Republic of China	2009	70.0
	2014	30.0
India	2017	67.0
Indonesia	February 2017	65.3
Pakistan	2017	80.0–95.0
Thailand	2014	70.0
Philippines	2017	80.0
Viet Nam	2016	91.0

Source: ADB (2018)

The cash on delivery method is not considered the preferred or most practical option for online transactions (Khaskheli & Jun, 2016). While online payment methods were preferred in developed economies, they were not used as much in less developed and developing economies, including Pakistan, they did not have access to PayPal or some of their services (Aziz, 2017). The main reason for using up to 95% of cash on delivery transactions was that online platforms have not yet earned the trust of the company's customers. Despite many difficulties, the growth of e-commerce through offline payment channels continued to grow in the country from a macroeconomic point of view. This notion has been supported by the advances already made, as well as by the estimates of future potential (Hanif, 2018).

2.8 E-commerce Barriers and Challenges

Various studies of e-commerce issues in developed economies have indicated that the problems faced by many organisations there may be entirely different to those faced by developing economies. Organisations that embrace ICT and e-commerce in developing economies face many unique challenges; challenges which are more pronounced than in developed economies (Huff & Yoong, 2000). Thus, developing economies face many obstacles that seriously hamper the growth of their e-commerce sector (Alyoubi, 2015). It has already been established that e-commerce can potentially offer many unprecedented opportunities through new technological advances, with its positive impact on trade, investment, business transactions and market penetration (Wresch & Fraser, 2011). However, the findings of many studies within both developing and developed countries who sought these benefits have been disappointing overall. Molla and Heeks (2007) noted that most SMEs did not appear to have benefited from e-commerce by expanding their market access, improving their reach, improving their relationships with their customers and suppliers, reducing their costs or improving their efficiency.

Researchers have identified many obstacles and challenges to the adoption of e-commerce by SMEs, especially those in developing economies. Barriers could be broadly categorised as being internal and external. Internal barriers exist within an organisation and can also be resolved in the organisation's environment as they are under its control. They typically include organisational culture, lack of resources, attitudes towards e-commerce and the level of employee training. External barriers that are beyond the immediate control of the organisation include a lack of telecommunications infrastructure, poor internet connectivity, the lack of fixed telephone lines for dial-up access and weak ISP infrastructure. Such barriers were identified by Kapurubandara and Lawson (2008) in Sri-Lanka and White, Afolayan, and Plant (2014) in Nigeria as a significant challenge for e-commerce adoption.

A recent study by Rahayu and Day (2017) further revealed that the high dependence on email services, lack of government support, lack of ICT specialists and lack of financial resources are all obstacles to the low adoption of e-commerce services by SMEs in Indonesia – a developing economy. Studies by Fawcett, Magnan, and McCarter (2008), Ihua (2009) and White et al., (2014) found that SMEs are not a uniform or standardised set of businesses. In fact, they constitute a very heterogeneous set and vary considerably according to size, sector, age, structure and location. As suggested by Apulu, Latham, and Moreton (2011), these characteristics can directly influence the adoption of e-commerce by an organisation). Salehi (2013) also argued that economic and cultural poverty and low awareness of information technology hinder the adoption of e-commerce in Iran's

developing economy. Alyoubi (2015) studied SMEs in developing economies and found several obstacles and difficulties in adopting e-commerce technology; something which was in line with the findings of other studies. Among other obstacles, the financial systems of developing economies were seen as a significant hurdle for SMEs and needed to be restructured to allow for online payment mechanisms and credit facilities. In this respect, developing economies lag behind, with the exception of Korea where the government actively supports and benefits from e-commerce. In studies undertaken twelve years apart, Awiagah et al. (2016) and Zhu (2009) identified regulatory conditions that also play a crucial role in stimulating SMEs and have a more significant impact on the adoption of e-commerce in developing economies than in developed economies. In these studies, inadequate infrastructure was a significant barrier to e-business adoption by SMEs in developing economies, and this situation is drawing the attention of many parties – including researchers – given the critical role that SMEs play in improving many economies by creating more jobs and poverty reduction. Thus, the development of e-commerce technologies for SMEs in any country would have a positive influence on the commercial and economic progress of the country (Rahayu & Day, 2015; Wit & Kok, 2014).

2.9 Summary

This context chapter has examined the development of the internet and changes in e-commerce in many developing and developed countries. The findings have shown that e-commerce, with the availability of internet technology, is seen as an essential tool to improve the overall economic performance of developed and developing economies in different regions of the world. With this new technological tool, many SMEs can face regional and global competition with the support of local institutes. E-commerce also offers the opportunity to help companies – primarily those in developing economies – narrow the economic gap with their competitors in advanced industrialised economies. However, due to various obstacles and challenges most developing economies, particularly those in the South Asia region, continue to struggle to invest in new computer applications, such as e-commerce. The technological and economic difference between developing and developed economies has been identified in different sections of this chapter and included the varying levels of adoption of e-commerce and the growth of internet technologies. It seems that developed countries have used internet resources and provided technical services to their local businesses because of the essential role they played in their economies. However, developing countries are still in their infancy and have tried to launch campaigns for businesses and individuals to expand the opportunities offered by e-commerce via the internet at different economic levels.

Chapter 3: SMEs' E-commerce Adoption

3.0 Introduction

This chapter examines the context of the adoption by SMEs of innovative technologies such as e-commerce. The main objective of the revision of the extant literature was guided by the research questions summarised in the first chapter of this thesis. This chapter begins by defining the concept of SMEs in various economies, particularly in the context of Pakistan, and how they contribute to a country's economy. It concludes by examining how the benefits of e-commerce could be leveraged by SMEs.

3.1 The Concept of an SME

The concept of SMEs, development and entrepreneurship was introduced into the growth and development landscape in the late 1940s. At this time critical targeted policies (grants, aid credits and individual tax systems) were implemented and support organisations for were created for such businesses by the governments of the economies. For example, a publicly funded SME agency was created for the first time in Japan in 1948, the US in 1953, India in 1954, Turkey and Pakistan in 1965 and Tanzania in 1966 (OECD, 2004). In terms of the size of SMEs, examination of the literature found that until January 1996, they were considered to be those with less than 500 employees, with the following subdivisions:

- Micro-business (between one and nine employees).
- Small business (10–99 employees).
- Medium-sized business (100–499 employees).

Subsequently, in 1996 the European Commission proposed a new definition of SMEs based on the following quantitative criteria:

- Total number of employees in an SME.
- Annual turnover.
- Total number of business assets.
- The degree of independence of the business or the ownership over it.

According to the European Commission (2016), an organisation is considered an SME if it employs fewer than 250 people, its annual turnover does not exceed €50 million, or whose total annual balance does not exceed €43 million (as shown in Table 3). In categorising SMEs further, the European Commission states that micro-businesses employ fewer than

10 people and that their annual turnover or total annual balance does not exceed €2 million. Small business employ fewer than 50 people and their annual turnover or balance sheet does not exceed €10 million. A medium-sized business has more than 49 employees but fewer than 250 employees and annual sales of not more than €50 million; with a total balance of equal to or less than €43 million.

Table 3: EU Based Business Category

EU Based Business Category	Number of Employees	Annual Turnover (€)	Annual Balance Sheet Total (€)
Micro	Less than 10	≤ 2 million	≤ 2 million
Small	Less than 50	≤ 10 million	≤ 10 million
Medium	Less than 250	≤ 50 million	≤ 43 million

Source: European Commission (2016, p. 11)

In the US, the definition of SMEs is entirely different from that of the EU (see Table 4). According to the OECD (2001), the US considers that SMEs include medium-sized businesses with less than 500 employees. Small firms are generally those with fewer than 50 employees, while micro-businesses have no more than 10 employees.

Table 4: US Based Business Category

US Based Business Category	Number of Employees
Micro	Less than 10
Small	Less than 50
Medium	Less than 500

Source: OECD (2001)

Looking at the current OECD (2017b) report on the contribution of SMEs to OECD economies, it was found that there was no standard international definition of SMEs. This was because different countries because the terms "small" and "average" in relation to the size of a business depends on the size of the national economy. For statistics, the OECD refers to SMEs as businesses employing up to 249 persons, with the following distribution: micro (between one and nine), small (10–49) and medium (50–249) (see Table 5).

Table 5: OECD Based Business Category

OECD Based Business Category	Number of Employees
Micro	Between one and nine
Small	Between 10 and 49
Medium	Between 50 and 249

Source: OECD (2017b)

Moreover, the definitions of SMEs in the Asia-Pacific region differ from one country to another as they can be based on the economic situation of a country. As identified above, SMEs in both developing and LDCs have been defined according to various criteria, such as different sectors, number of workers employed, the volume of production or sales, and value of assets used (Cunningham, 2011). However, in some developing economies, the total number of SME workers ranges between 100 to 300. And the OECD (2001) considered this a medium or large size business. Recent data from the OECD (2019) have illustrated the different definitions of SMEs in economies in Asia and the Pacific (see Table 6).

However, Pakistan, as a developing country in South Asia, has a different definition of SMEs. In the absence of a uniform definition of SMEs in Pakistan (Dar et al., 2017; Bhutta, Rana, & Asad, 2007), many institutes in Pakistan – such as the SME Bank, the SBP and SMEDA – define SMEs in different ways. According to the SBP (2016), small businesses have fewer than 50 employees, and an annual sales volume that does not exceed PKR 150 million. Businesses (e.g., manufacturing, service industries and others) employing between 51 and 250 people and whose annual sales volume is between PKR 150 million and 800 million are considered medium-sized businesses (see Table 7). The definition of SMEs by SBP (2016) was adopted in this study, which made it possible to select the relevant cases for the analysis and to discover the various e-commerce adoption factors in the selected cases (as presented in Chapter 7).

Therefore, it has been established that, each country has its own definition of SMEs. Further, the definition of SMEs may vary from one institution to another – even in the same country – due to many factors such as the nature and characteristics of industrial sectors and the local business environment, or the total volume of annual sales.

Table 6: Asian Based Business Economies

Asian Based Business Economies	SME Sectors	Criteria/Country's Official SME Definition
Hong Kong	Manufacturing and non-manufacturing	Less than 100 employees
Thailand	Production, service, wholesale	Less than 200 employees or invested capital not exceeding THB 200 million
Japan	Manufacturing, retail, wholesale and service	Less than 300 employees or invested capital not exceeding YEN 300 million
China	Industrial, construction, transportation, wholesale and hospitality	Less than 1000 employees or invested capital not exceeding CNY 400 million
Malaysia	Manufacturing, services and other sectors	Less than 200 employees or invested capital not exceeding RM 50 million
Singapore	Manufacturing and non-manufacturing	Less than 200 employees or invested capital not exceeding \$ 100 million

Source: OECD (2019)

Table 7: Pakistan Based Business Categories

Pakistan Based Business Category	Number of Employees	Total Annual Sales Turnover (PKR)
Small	Less than 50	≤ 150 million
Medium	Less than 250	≤ 800 million

Source: SBP (2016)

3.2 SMEs' Economic Contributions

According to the various statistics and reports of the industrialised economies, SMEs constitute the dominant form of business; accounting for about 99% of all businesses. They generate employment opportunities (averaging around 70% of jobs) and contribute significantly to value creation – generating between 50% and 60% of value added on average (OECD, 2016). SMEs therefore play a vital role in the development of the economy

by contributing to GDP, as they have been a major source of job creation and output growth in both developing and developed economies (Akugri, Bagah, & Wulifan, 2015; Fan, 2019). In developing economies, SMEs account for up to 45% of total employment and 33% of GDP. By taking into account the contribution of the self-employed, SMEs have contributed to more than half of employment and GDP in most economies, regardless of income level (International Finance Corporation, 2010). An empirical study by Subhan et al. (2013) provided statistics on the contribution of SMEs in developed and developing economies. The study showed that SMEs account for more than 55% of GDP and more than 65% of total employment in developed economies. SMEs and informal businesses account for more than 60% of GDP and more than 70% of total employment in low-income countries, while they account for around 70% of GDP and 95% of total employment in low and middle-income countries.

Globally, SMEs are seen as a tool for citizens to take ownership and economic growth (Akugri et al., 2015). The importance of SMEs today can easily be recognised worldwide because of their essential contribution to the achievement of various socio-economic objectives; such as stable growth, a higher employment rate, production capability, export promotion and entrepreneurship (Keskin, Senturk, Sungur, & Kiris, 2010). It is therefore unsurprising that SMEs have been associated with the rapid economic growth of Asian countries. It was also evident that SMEs in the Asian region are the most important source of job creation in all sectors of both rural and urban areas (Joshi & Ganapathi, 2008). Table 8 shows the total growth of SMEs in four selected Asian economies. The table shows the share of business, the employment ratio and the total contribution to GDP of four Asian economies: China, Hong Kong, South Korea and Taiwan.

Within China, SMEs have become the drivers of economic growth. In 2011, SMEs accounted for 59% of GDP, 50% of tax revenues, 68% of foreign trade volume and 75% of urban employment (Cunningham, 2011). In 2013, the National Bureau of Statistics reported that in China, SMEs accounted for 44 million business units, 60% of the country's total GDP, 50% of tax revenues, and provided nearly 80% of the chances of finding a job in urban areas (Xiao, 2017). According to China's definition criteria, there were 343,135 SMEs in 2013 – an increase of 2.6% compared to the previous year. This number represents 97.3% of the total (Asian Bank, 2014).

Table 8: Total Growth of SMEs in Four Selected Asian Economies

Asian Economies	Total Share of Businesses	Total Share of Employment	Total Contribution to GDP
1. China	97.3%	80%	60%
2. Hong Kong	98%	46%	49%
3. South Korea	99%	90%	51%
4. Taiwan	97%	78%	31%

Sources: 1. ADB (2014); Cunningham (2011); Xiao (2017). 2. Census and Statistics Department Hong Kong (2018). 3. National Statistics Office Korea (2015). 4. Government Statistics (2015); Huang and Evely (2016)

By contrast, Hong Kong's SMEs differ from other Asian economies because they are highly dependent on international trade and finance (Bjerke, 2000). Hong Kong's economy is based on SMEs and considered an open trade economy with a very high level of economic development. According to the Hong Kong Census and Statistics Department, in September 2018 the total number of SME business units in Hong Kong was 340,000, compared to 273,350 in 2009. They accounted for more than 98% of the total business units in the country and provide employment opportunities to more than 1.3 million people – about 46% of total employment and 49% of GDP. Of note is that their economic policies of free business and free trade have stimulated the huge growth of SMEs in the country (Cunningham, 2011).

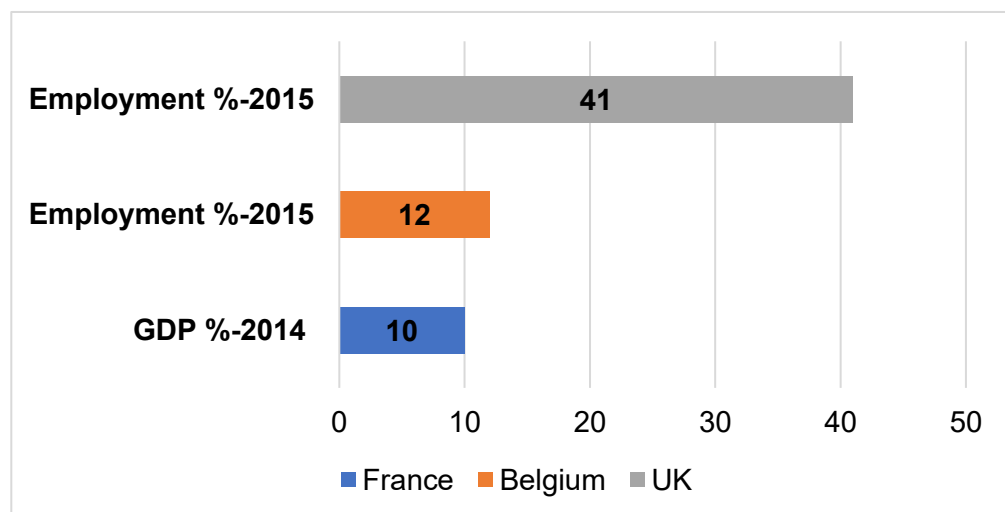
South Korean SMEs also play a vital role in developing and maintaining a healthy economy. In quantitative terms, the ratio of SMEs in the Korean economy was very large (Yoo, Choo, & Lee, 2018). According to the National Statistical Office, in 2015 SMEs accounted for 3.6 million business units compared to 3.3 million in 2012; an increase of 3.7% over previous years. Further they accounted for 99% of businesses and 88% of total employment; with an increase in total exports of 38% and 51% of value added. In 2012, the Korean SME sector employed 13 million people, 87% in different sectors (ADB, 2014). By 2015, this had increased to 15 million, representing 90% of total employment.

The Taiwanese government has divided SMEs into two categories based on product types, capital availability and several employees. Category 1 includes the construction, mining and manufacturing industries with a turnover of New Taiwan Dollar (NTD) \$ 80 million. Category 2 includes various industries: electricity, agriculture, water and gas, industrial and

commercial services, and transportation and real estate, with a turnover of NTD \$ 100 million (Lee & Jioe, 2016). In 2015, government statistics indicated that the number of SMEs reached a record 1.38 million, accounted for over 97% of the total number of businesses in the country and employed 78% of the country's labour force. Huang and Evely (2016) stated that this figure was higher than in previous years.

In many developed economies, the economic weight of the social and solidarity economy in which social enterprises operate has increased steadily in recent years; particularly in the aftermath of the global crisis (OECD, 2017a). For example, as shown in Figure 15, in France – an example of a developed economy – SMEs accounted for 10% of GDP in 2014. In Belgium, another developed economy, with the help of SMEs the employment sector in social enterprises increased by 12% between 2008 and 2014. A European Union report (2016) stated that by 2015, SMEs accounted for 17% of total private employment. In a third developed economy – the UK – as of 2015, 41% of SMEs had created more jobs compared with 22% previous years (Social Enterprise UK, 2015). Nevertheless, significant differences between developed economies are observed in the contribution of small firms in terms of job creation, and value added. For example, in the services sector the share of SME employment varies from 60% in Greece to 20% in Denmark and Germany, while the share of SMEs in value-added varies between 45% in Luxembourg and 15% in Switzerland.

Figure 15: Role of SMEs in Developed Economies



Source: European Union (2016)

Despite the potential role of SMEs described above in accelerating growth and job creation in many economies, Abor and Quartey (2010) identified some bottlenecks in the study of SMEs in the region of West Africa and Ghana as a developing economy. They found that the size of the organisation, government policies on infrastructure regulation and high rates

of ICT taxes affect the adoption of e-commerce within Ghanaian organisations. Other studies in developing countries (Aryeetey, Baah-Nuakoh, Duggleby, & Steel, 1994; Gockel & Akoena, 2002; Steel & Webster 1991) confirmed that the development of SMEs in many organisations was hampered by certain factors. These factors include the lack of funding, lack of leadership and direction, expensive ICT equipment and weak regulatory and technological authorities; factors which prevent SMEs from entering the global innovation market. Management's expertise in innovative technologies was one of the significant problems of SMEs. Therefore, the lack of management expertise in SMEs imposes significant constraints on their development and adoption of e-commerce and while SMEs tend to attract motivated executives, they can hardly compete with large companies.

3.3 SMEs' Role in Pakistan

As introduced in Chapter 1, in October 1998 the Pakistani government set up a regulatory body called SMEDA to oversee all the functions of SMEs in the country. Upon establishment, SMEDA's primary function was to secure SME financing by providing a conducive business environment and business development services to SMEs. SMEDA is not only an SME policy advisory institute for the government, but it also assists other stakeholders in addressing their SME development agenda (SMEDA, 2018b). SMEDA, as a leading institution, has organised a number of workshops in the country to facilitate and strengthen SMEs in different parts of the country by improving information-sharing systems and providing specialised skills. In most cases, SMEDA has also helped and encouraged SMEs in achieving the universal standard confirmation for their subjective items and procedures. (Zafar & Mustafa, 2017). Finally, SMEDA has encouraged the development of the mechanical group and the improvement of connectivity and productivity of Pakistani SMEs, both within Pakistan and globally (Chughtai & Alam, 2014).

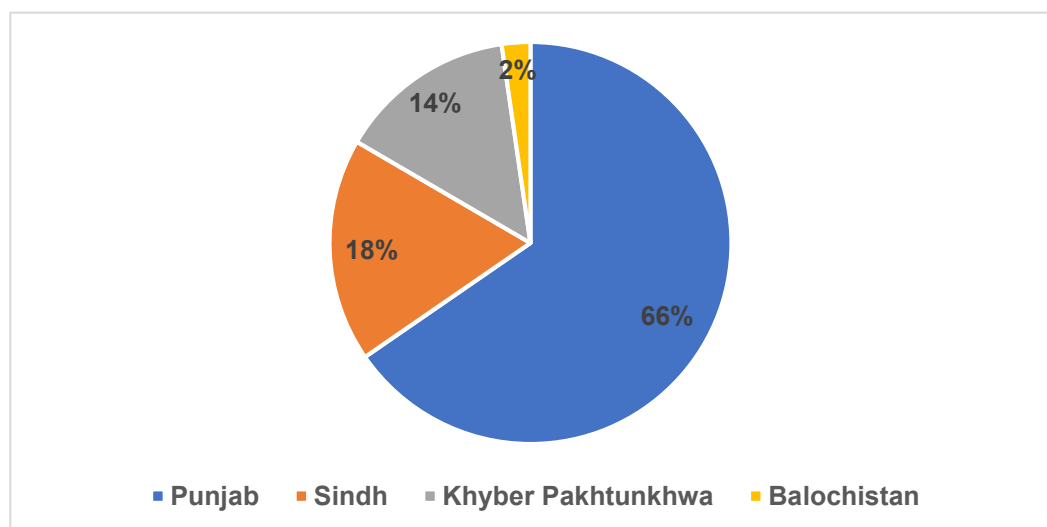
In Pakistan, the SME sector includes micro, small and medium-sized businesses and uses two categories for their definition: the total number of employees and capital information. According to SMEDA (2018a) (see Table 9), 3.2 million SMEs operate in the country, accounting for almost 90% of all business units in Pakistan, employing 80% of the non-agricultural labour force and having an annual share of almost 40% in the annual GDP and approximately 30% of all exports. (Zafar & Mustafa, 2017). Due to the importance of SMEs in the country, their growth has become a central element of government policies for economic recovery, poverty reduction and job creation in rural and urban areas.

Table 9: SMEs Total Contribution to Pakistan's Economy (%)

Economy	Total Share of Establishment	Total Share of Employment	Total Contribution to GDP	Total Exports
Pakistan	90%	80%	40%	30%

Source: SMEDA (2018a)

According to the Pakistan Bureau of Statistics (2018), more than 30% of Pakistan's exports depend on the SME sector and they contribute 40% of GDP across the four provinces (see Figure 16). A large concentration are in Punjab province (66%) while the share of Sindh and Khyber Pakhtunkhwa provinces is respectively 18% and 14%. The share of Balochistan province is the lowest (2%) because of the instability of government authorities, involvement of military departments and the inadequate economic environment of the province.

Figure 16: Provincial Share in the SME Sector

Source: Pakistan Bureau of Statistics (2018)

Moreover, it can be argued that Pakistan's economy was the SME economy, with the crucial role of SMEs in the context of Pakistan highlighted by both previous research and recent statistics (Raza, Minai, Zain, Tariq, & Khuwaja, 2018; SMEDA, 2017). However, efforts remain limited due to the continued focus on large companies and neglect of the value of SMEs (which are the spearhead of Pakistan's economy). For example, with the exception of SMEDA, crucial local business institutes that have been established in the country to facilitate the business activities of Pakistani companies (e.g., Board of Investment, Export

Promotion Bureau, Federal Board of Revenue) are mainly focused on large businesses rather than SMEs (Subhan et al., 2013).

Dar et al. (2017), and Hyder and Lussier (2016) have also studied the condition of SMEs in Pakistan and acknowledged their essential contribution to economic diversification, job creation, income generation and poverty reduction. Further, the GoP devotes much effort and resources to promoting the development of many sectors, entrepreneurship opportunities and the advancement of SMEs. The government has also set up various SME banks and microfinance institutions to support many SMEs in the country. Also, according to Bhutta et al. (2008), most banks have SME-specific services to facilitate the organisation of SMEs in terms of access to finance and further development of the organisation.

However, regardless of their economic contribution and importance in the economy, it has been reported by a number of researchers (e.g., Hyder & Lussier, 2016; Kureshi, Quershi & Sajid, 2010; Rohra & Panhwar, 2009; SBP, 2016; Zafar & Mustafa, 2017) that Pakistan's SME sector continues to suffer from various weaknesses that have limited its ability to take full advantage of the fast-growing global markets. These include low value-added products, lack of adequate financial information, lack of adequate infrastructure, a major energy crisis, lack of strategic government planning for the future development of the SME sector, low levels of user awareness of online transactions, unskilled HR and non-aggressive lending strategies.

3.4 Leveraging the Benefits of E-commerce to SMEs

In the literature, studies have shown that e-commerce, as a new technology for many developing and LDCs, will bring many benefits for SMEs (Abou-Shouk, Megicks, and Lim, 2013; Garg & Choeu, 2015; Chaffey, 2002; Ghobakhloo, Sabouri, Hong, & Zulkifli, 2011; Rahayu & Day, 2015; Savrul, Incekara, & Sener, 2014). Abou-Shouk et al. (2013) argued that with the use of e-commerce technology, SMEs in many sectors can improve their cash flow, increase their productivity and promote greater competitiveness by reaching new customers in a limited time. Rahayu and Day (2015) and Garg and Choeu (2015) also support this idea by offering another advantage of the use of e-commerce by SMEs: e-commerce offers many organisations of all sizes and sectors the opportunity to improve their competitiveness. It transcends geographic boundaries and time zones to save time and money, which opens up new opportunities in international markets and creates a platform for small businesses to compete globally. Ghobakhloo et al. (2011) found that e-commerce has many, advantages for SMEs, including modest benefits such as reduced communication and administrative costs. Chaffey & Chadwick (2016, p. 13) also stated that

the main benefit of e-commerce applications was to increase customer preference further, maintain buyer-seller confidence and facilitate repetition of purchases with existing customers. E-commerce helps SMEs reduce delivery costs electronically which in turn reduces staff and transport costs. All of these studies have further asserted that with e-commerce, SMEs can do business efficiently and cheaply because the e-commerce process enables companies to receive orders online; electronically accept money through online payment channels such as credit/debit cards or digital bank transfers; and confirm, process and deliver in an electronic environment. In addition, the OECD (2004) pointed out that e-commerce applications offer many benefits for a wide range of internal and B2B processes and transactions. Such applications improve the management of information and knowledge within SMEs, can reduce transaction costs, and increase the speed and reliability of transactions for B2B and B2C transactions. Also, they are useful tools for improving external communications and service quality for existing and new customers.

However, in developing economies, the benefits of e-commerce for SMEs have shown a different trend. Among the few studies, a study by Addae-Boateng & Dzisi (2016) demonstrated how SME retail businesses in Ghana are key to economic growth and development through the establishment of new businesses (entrepreneurship) aimed at creating e-commerce capabilities and enhancing the growth of existing businesses. The study revealed three advantages of e-commerce: operational, informational and strategic. Operational benefits are associated with reducing transaction costs and improving business efficiency through e-commerce. Information advantage is obtained by an SME when e-commerce has helped a company to improve communication through internet messaging services (email) between the company and the customer. Finally, strategic advantage is achieved through business improvement and the central trust between business partners and customers which creates more opportunities to generate more revenue.

Apart from these studies, research on the potential of e-commerce for SMEs in a globalised business environment confirms that by entering the e-commerce sector, SMEs in many economies can make the most of e-commerce to manage the e-difficulties of the new business environment. Also, SMEs are implementing e-commerce initiatives to invent new ways to create new models for e-commerce and value-added e-services, to develop e-commerce strategies and to develop businesses globally through to electronic partnerships with large companies that are their customers, trading partners or suppliers (Savrul et al., 2014). This idea is supported by Kartiwi, Hussin, Suhaimi, Jalaldeen, and Amin (2018), whose results showed that SMEs would be able to take advantage of the expected benefits of e-commerce adoption if they were to improve business competitiveness in Malaysian SMEs.

3.5 Summary

This chapter has discussed the adoption by SMEs of innovations such as e-commerce, beginning by examining the concept of an SME and how its definition varies across the world. It then considered their contribution to economic growth within different countries – with a focus on Pakistan – highlighting the vital role they play. It concluded with an investigation into how SMEs can seek to benefit from e-commerce and how the trends are different within developed and developing countries.

Chapter 4: Literature Review: E-commerce in SMEs

4.0 Introduction

This chapter begins by examining the literature considering e-readiness for the adoption of e-commerce; including human, financial and ICT resources, and the role of leadership in e-commerce adoption by SMEs. It then moves on to review previous studies and examines various factors that influence the adoption by SMEs of innovative technologies such as e-commerce. Finally, this chapter concludes with the identification of six categories of issues resulting from the gaps identified in the literature in relation to the gaps in the adoption of e-commerce by SMEs in developing and developed countries.

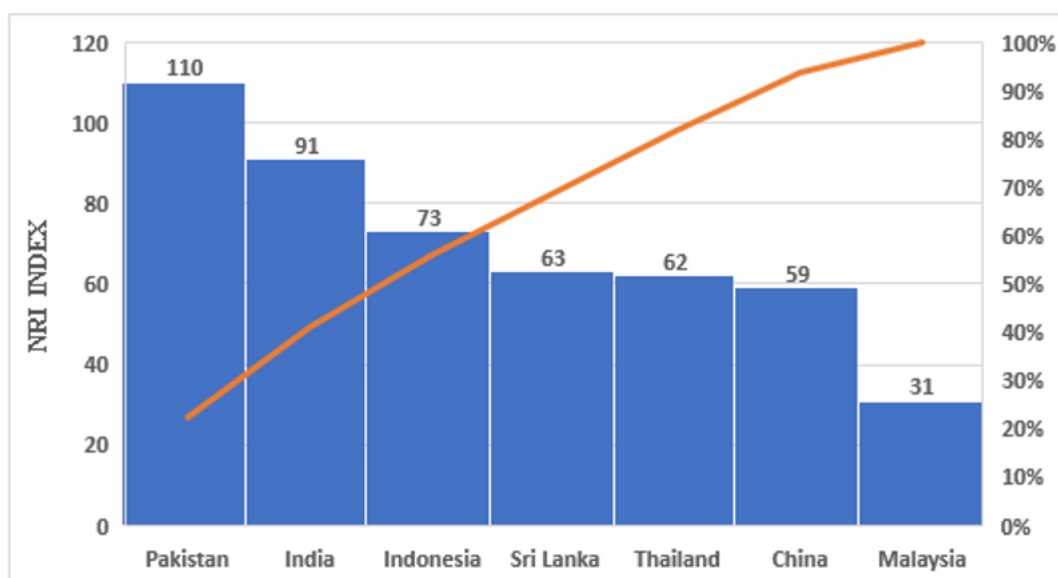
4.1 E-readiness for E-commerce Adoption in SMEs

The term "electronic readiness" is described as a "readiness" to operate in the e-commerce and e-commerce market (Parker, 2000). The success of an SME's internet initiatives depends not only on efforts to digitise its value chain but also on the willingness of its customers, suppliers and business partners to engage in electronic transactions (Chen, Windasari, & Pai, 2013). Docktor (2004) observed that the term "electronic preparation" represented the development of several levels of ICT infrastructure units involving different ICT activities. To conduct e-commerce in SMEs, companies need to adopt and implement the necessary ICT infrastructure units. SMEs in many developing economies in particular need to connect to ICT-related infrastructure tools, such as personal digital devices, laptops, faster internet connections, printers and fax machines as well as and other networks and communications to make e-commerce applications work smoothly (Laudon & Laudon, 2014, p. 195). Similarly, Molla and Licker's (2005) study of developing economies found that in order to connect ICT-enabled devices to manage the e-commerce process, adequate DC power was needed. Although it is available in developed and advanced economies in Europe and North America, many SMEs in Asian developing economies and LDCs – particularly rural ones – are still struggling to have enough of their own electricity and carry out their activities. According to the Information Economy Report (UNCTAD, 2017), a considerable amount of e-commerce transactions are received via organisations' websites, particularly in developed economies. However, the number of e-commerce transactions made on organisations' websites is meagre in most developing economies and requires heavily investment in ICT-related technologies (Kozma & Vota, 2014).

A micro-study by Rizk (2004) on the assessment of the electronic readiness of Egyptian SMEs is of interest not only because of the low cost of ICT infrastructure, but also because of the technology and human capital. In that study, the researcher argued that the challenges of the old traditional economy, such as funding problems, legal infrastructure, policy framework and general business environment, would affect the development of SMEs in general as well as the e-readiness skills of the country. However, Laudon and Laudon (2014, p. 20) believe that e-commerce has reinvented itself, disrupting the traditional marketing and advertising sector and jeopardising relevant media and content companies. Many organisations are now engaged in e-commerce activities using new ICT tools such as cloud computing, blockchain technology, extensive data analytics (OECD, 2019), mobile e-commerce, Facebook as well as more social 2.0 networking sites such as YouTube, Twitter and Tumblr, and new social graphic sites like Pinterest which illustrate the new face of e-commerce in the 21st century.

In studies by Touray, Salminen, and Mursu (2013), and Lechman and Kaur (2016), it was found that ICT was seen as a platform for development, thus enabling nations to create an information intensive society. Prior to these studies, Wielicki and Arendt (2010) had also conducted a comparative study on the online readiness capacity of SMEs in four developed economies (US, Spain, Portugal and Poland) and found that readiness for information technology and a country's communication both significantly helped it's SMEs to apply more ICT-based knowledge within their organisations. This can also have a significant impact on the e-commerce readiness of individual SMEs in their economies. Based on the recent Global Information Technology Report (World Economic Forum, 2016), best network readiness index, performers includes high income Southeast Asian economies (Singapore – Ranked 1st out of 139 and Japan – 10th), EU economies (Finland – 2nd, Sweden – 3rd, Norway – 4th, the Netherlands – 6th, Switzerland – 7th, the UK – 8th and Luxemburg – 9th) as well as the US (5th). ICT network readiness, therefore, remains highly correlated with per capita income. However, most developing, low-income and LDCs, including Pakistan, have very low network status (110th among 139 countries and ICT readiness (104th among 139 countries) as compared to other economies in the Asian region (Malaysia – 31st, China – 59th, Thailand – 62nd, Sri-Lanka – 63rd, Indonesia – 73rd and India – 91st), (as shown in Figure 17); which prevent many SMEs from fully adopting e-commerce.

Figure 17: State of Readiness of the Network of Developing Economies and Less Developed Economies in Asia



Source: World Economic Forum (2016)

The report concluded that the quality of e-preparation in Pakistan was insufficient and unsatisfactory for many SMEs to adopt and implement different ICT e-commerce tools in the business process of the organisations. As a result, the adoption rate of many innovative and information-related networks is low in the country due to a variety of factors that need to be examined. Thus, this study evaluates the current adoption and readiness of e-commerce using the availability and quality of the existing online e-readiness infrastructure within various SMEs in Pakistan. This can be done after examining the e-commerce adoption situation using the ICT infrastructure units available in the various SME sectors of Pakistan.

Therefore, the first research question of this study is: **What is the current situation of SMEs' e-commerce adoption in Pakistan?**

4.2 SMEs' E-commerce Adoption Resources

In many companies, financial, human and technical resources such as computers, telephone lines, digital connection cables and other related network devices play a vital role in the adoption of e-commerce (Al-Qirim, 2007). In the case of SMEs, even if owner-managers consider the adoption of e-commerce as a crucial new technology, such organisations often lack the necessary and sufficient resources to adopt e-commerce (Thong & Yap, 1995, 1996). As a result, Ndayizigamiye and Khoase (2018) recently stated that SMEs' e-commerce adoption resources are a significant barrier to the integration of e-

commerce. Strong organisational constraints on financial, technological and HR often lead organisations in developing countries to lag behind their counterparts in developed countries in terms of e-commerce (Huy & Filiatrault, 2006). In addition, as part of their earlier research, Franco & Garcia (2018) confirmed that while many developing country organisations support e-commerce, they will need better ICT capabilities to be made available to them. However, Looi (2005) explained that developed economies have succeeded in creating an ICT infrastructure environment conducive to the adoption of e-commerce, due to the existence of some shared network infrastructures such as ICT standards and their applications. Further, Chieochan, Lindley, and Dunn (2000) found that the technological infrastructure of the various economies has a positive influence on the adoption of e-commerce. In many developing countries, with advanced technologies, as well as human and financial resources, many SMEs have therefore been led to adopt e-commerce (Teo & Pian, 2004).

4.3 Leadership Role in SMEs' E-commerce Adoption

The adoption of e-commerce in SMEs is now bringing about positive change and requires strategic development and the ability of SMEs to cope with these changes as well as new challenges, while at the same time embracing them. Ghandour (2015) argued that the management of these successful SMEs had focused primarily on the leadership style that facilitates appropriate change and creates an enabling environment for e-commerce. According to Cope and Waddell (2004), the characteristics required to drive a transition to e-commerce are visionary, inclusive, risk-taking, affordable, forward thinking, open to change, committed and able to communicate. More recently, the work of Kenneth, Rebecca, and Eunice (2012) suggested the idea of leadership in terms of the following: owner-managers and management at different levels; in-depth analysis of the organisation's position on e-commerce, where the organisation needs to assess its global position to adopt e-commerce; significant financial investment for the availability of different ICT resources; and the cultural transformation that must ensure the adaptation of the corporate culture. With these in place, an organisation begins to develop and adopt important e-commerce initiatives in its business processes (Caldeira & Ward, 2003). In many SMEs, the role assigned by organisations lies with the "owner-managers" who plan, organise, direct and control all e-commerce projects and activities and then define the specific strategies of many of the organisation's technological projects (Oliveira, Filho, Nagano, Ferraud, & Rosim, 2015). To move forward, owner-managers need to be enthusiastic, passionate, believe strongly in the benefits of many e-commerce tools, and commit to viewing e-commerce as an essential and integral part of the organisation (Jones, 2005). To be

successful, SME owners/CEOs need to combine their leadership and other management elements throughout the e-commerce implementation cycle in their activities (Al-Qirim, 2007; Ghobakhloo & Tang, 2013).

However, there is evidence that, especially in developing economies, because of the limited technological capabilities of SME managers, it is common practice to engage the ICT vendor and outsource their default e-commerce strategies. In many cases, ICT vendors do not understand the SME market that requires roles, responsibilities, and even a specific plan for all activities to be established and communicated with care and efficiency to the information technology specialist – who must always be connected to the objectives of the company (Ghandour, 2015). To do this, owner-managers need to have a basic understanding of the technologies associated with e-commerce, as they must explain their business involvement to the ICT vendor and determine the level of investment to be devoted to e-commerce (Epstein, 2005). Rigorous selection of ICT vendors is therefore critical to the successful implementation of e-commerce. Igbaria, Zinatelli, Cragg, and Cavaye, (1997) also found that technical support, training and a harmonious working relationship with ICT providers can reduce the risk of technological failure in SMEs, and thus enable the successful adoption of e-commerce.

4.4 E-commerce Adoption Factors Affecting SMEs

As discussed in Chapter 1, one of the main objectives of this study is to determine the adoption factors of e-commerce. These include factors that can either motivate or prevent the adoption of e-commerce in different SMEs. Many researchers from both developing countries (AlBar & Hoque, 2017; Kapurubandara & Lawson, 2008; Molla & Licker, 2005; Rahayu & Day, 2015; Seyal et al., 2004; Syed & Shaikh, 2012) and developed economies (Ahmad, Abu Bakar, Faziharudean, & Mohamad Zaki, 2015; Altayyar & Beaumont-Kerridge, 2016; Lawson, Alcock, Cooper, & Burges, 2003) have undertaken research across various SME sectors in different economies to determine the drivers of e-commerce adoption. E-commerce as an innovative technology was first launched in developed economies and as a result, many researchers in developed economies have used different frameworks, models and theories of adoption to increase the adoption rate of e-commerce. However, many of these studies on the developed economies (Al-Qirim 2007; Kurnia et al., 2015; MacGregor & Kartiwi, 2010; Zhu & Kraemer 2005) cannot be applied in the context of developing economies because of the different cultural backgrounds, business environment and government rules and regulations (Lawrence & Tar, 2010).

According to Abrar-ul-haq, Jali, and Islam (2015), adoption of e-commerce in developing economies is virtually non-existent due to a lack of managerial skills, financial access and government support; factors which are considered critical in the development of SMEs. In Bangladesh, Uddin and Bose (2013) found that the business plan, distribution channel, management skills and government support were strongly positively correlated with the success factors of SMEs. In contrast staff, products and services had a slight negative correlation. In relation to their three remaining variables: technology, customer management and access to capital, these were found to have a slightly positive correlation. This result is interesting reading about the success factors of SMEs in Khulna City.

In an empirical study in Kuwait, Al-Alawi and Al-Ali (2015) shed light on the factors that have led to the adoption of e-commerce in SMEs. The statistical results show that the organisational context (management support), the technological context (perceived benefit) and the environmental context (government support) all play an essential role in the adoption of e-commerce. Similarly, Shemi and Procter (2013) studied the challenges that SMEs face in adopting e-commerce in the context of Botswana. Several data collection methods were implemented including using unstructured and semi-structured face-to-face interviews, website analyses, observations and documents. The challenges discovered were typical of the management, technology and environmental issues facing each company. Further, Molla and Licker (2005) assessed the state and implementation of e-commerce in SMEs in a developing economy in South Africa and found that the implementation of integrated e-commerce solutions and applications allowing security was minimal (see Appendix A for a table of the literature review on e-commerce adoption factors in developing economies) a summary of the previous literature on e-commerce adoption factors in the context of developing economies.

As shown in Appendix A, various e-commerce adoption factors in developing economies have been reported. Lawrence and Tar (2010), and Abou-Shouk et al. (2013) argued that developing economies are considered heterogeneous economies in terms of culture, race, political and economic situation, demographics and ideology. Baidoun et al. (2018) also confirmed that different economies have different socio-economic and political conditions that would influence the outcome of business development. Therefore, e-commerce adoption factors that may contribute to the adoption of e-commerce in one country may not be applicable in another country. For example, in most economies, financial constraints (Lussier et al., 2016) and quality of the technology infrastructure (Kapurubandara & Lawson, 2008) have affected the adoption of e-commerce in SMEs. However, in some economies, the quality of the infrastructure and the availability of financial resources are at the service of SMEs; allowing full adoption of e-commerce in the SME structure.

In addition, a comparison of studies of two developing economies; Baidoun et al. (2018) and Abrar-ul-haq et al. (2015) showed that the two economies share similarities in financial constraints as a factor in the adoption of e-commerce. Baidoun et al. (2018) indicate that having sufficient capital, keeping good records with financial controls, developing plans and obtaining professional advice on business management are the most critical factors for the viability and success of small businesses. While the study by Abrar-ul-haq et al. reports that financial access, management skills and government support are the most critical factors contributing to the development of SMEs in the development of the economy. In another comparative study – in this case a developing and a developed country – of Sweden and Indonesia (MacGregor & Kartiwi, 2010), it appears that organisational barriers provided the most significant differences, with the Indonesian respondents rating them higher than the Swedish respondents. Finally, the data were separated, and a series of factor analyses applied. The data showed that while Swedish respondents were more concerned about technical issues, Indonesian's were more concerned about organisational barriers.

Also, in their study of Pakistan as a developing Southeast economy, Abrar-ul-haq et al. (2015) examined e-commerce adoption factors such as marketing, technology, finance, government support and education. The results showed that all factors except technology play an essential role in developing SMEs. Technology does not contribute much to the development of SMEs in Pakistan because they are not technology-based. On the other hand, a study within Iran by, Ghobakhloo and Tang (2013) revealed that the adoption of e-commerce by small Iranian firms was strongly influenced by the characteristics of owner-managers and by the innovative nature of management; leaving a substantial gap in the previous studies of Pakistan (Abrar-ul-haq et al., 2015; Dar et al., 2017; Seyal et al., 2004; Subhan et al., 2013; Zafar & Mustafa, 2017). Thus, this gap confirmed the statements of Abou-Shouk et al. (2013), Aljowaidi (2015), Molla and Licker (2005), Lawrence and Tar (2010) and Lim et al. (2018) who all argued that developing economies are extremely "heterogeneous" in terms of political systems, economy, ideology, demography, culture, race, etc., because each country has a unique situation that requires culturally appropriate strategies and specific adoption of trade. For example, developing Asian economies are distinguished from other developing economies and the LDCs in the region in terms of their geographic, social and cultural context. In addition, previous studies on the adoption of e-commerce have been conducted in different regions of developing countries (see Appendix F), but the developing economies of South Asia – particularly Pakistan – have received less attention (Abrar-ul-Haq et al., 2015; Hyder & Lussier, 2016; Lawrence & Tar, 2010; Nazir & Zhu, 2018; Seyal et al., 2004). Therefore, this study contributes to the knowledge of e-

commerce and developing economies by highlighting the factors associated with the adoption of e-commerce in SMEs in Pakistan.

The second research question for this study is, therefore: **What are the different e-commerce adoption factors in the SMEs of Pakistan?**

4.5 Government's Role in the Adoption of E-commerce by SMEs

There is ample scientific evidence showing the role of government in many economies; evidence which gives considerable attention to the development and adoption of e-commerce in SMEs. Researchers such as Al-Somali et al. (2015), Awiagah et al. (2016), Chan and Al-Hawamdeh (2002), Dunt and Harper (2002), Martinsons (2008), Nazir and Zhu (2018), and Shemi and Procter (2013) found that the participatory role of governments in building ICT infrastructure for the adoption of e-commerce has significantly increased the adoption of e-commerce and its use in developed economies. In Singapore, for example, the government has improved ICT infrastructure by ratifying e-commerce legislation (Chan & Al-Hawamdeh, 2002). In the UK, the Institute for the Information Society of Wales was established to help SMEs adopt e-commerce as a useful business tool (OECD, 2002). In their 2003 study, Bjørn, Fitzgerald, Scopula found that government intervention influenced and regulated SMEs, so such interventions needed to focus on mobilisation, which they explained had a sense of internal organisation. Further, Seyal et al. (2004) indicated that government support is closely linked to the adoption of e-commerce in society and Awiagah et al. (2016) argued that governments in developing economies should primarily provide financial resources to SMEs to improve the e-commerce market in the economy. In a study of SMEs in developing economies, Lawrence and Tar (2010) added that the government should help SMEs to promote the use of ICT, education and the establishment of an appropriate regulatory framework for the adoption of e-commerce. In many countries – including some OECD countries – governments face the challenges of weak growth, weak trade and investment, and growing or persistent inequalities (OECD, 2016a). They are also confronted with the growing discontent of citizens in the current situation, something which is also reflected in a reaction against globalisation and technological change. In this context, it is necessary to create the conditions to improve the benefits of open markets and technological advances and to disseminate them more widely in the economy and society (OECD, 2017a).

Despite all the efforts and initiatives that governments have deployed in support of their economies, the literature on its support for the adoption of e-commerce by SMEs is still far behind – especially in developing economies (Nazir & Zhu, 2018; Scupola, 2003, 2009)

Thus, this is the motivation for this study. As established, governments in many developed economies have supported SMEs in the adoption of e-commerce but what are the problems specifically faced by SMEs in developing economies while adopting e-commerce as a business tool?

Therefore, the third research question for this research is: **What strategies should be put in place to develop e-commerce adoption practices in Pakistani SMEs with the help of government(s), local business institutes and awarding agencies?**

4.6 Literature Gaps SMEs Adoption of E-commerce (Development of the Conceptual Framework)

After reviewing previous studies of developing, developed and the LDCs in the context of e-commerce adoption by SMEs, this chapter has highlighted several shortcomings. The following six issues/categories (as shown in Figure 18) have therefore been identified in relation to the research questions that have been compiled to address the gaps in the current literature:

- 1. Overall characteristics and situation of SMEs:** Numerous studies and previous reports as discussed in the literature (Chen et al., 2013; Kozma & Vota, 2014; Laudon & Laudon, 2014; Lechman & Kaur 2016; Molla & Licker, 2005; Touray et al., 2013 UNCTAD, 2017) have focused on the general characteristics of SMEs. However, they have ignored the general position of adoption of innovative technologies (e-commerce) of SMEs. The literature on the state of adoption of e-commerce by SMEs as innovation thus remains insufficient – particularly in the context of developing economies in South Asia. Therefore, this study will contribute to the literature on the current innovative position in e-commerce adoption, with a focus on the developing economy of Pakistan.
- 2. Usage of ICT infrastructure units:** Compared to developed economies, the literature reviews (Al-Qirim, 2007; Chen et al. 2013; Franco & Garcia, 2018; Ghandour, 2015; Ndayizigamiye & Khoase, 2018; Teo & Pian, 2004; Touray et al., 2013; Wielicki & Arendt, 2010; World Economic Forum, 2016) from this study confirmed that the current state of electronic readiness related to infrastructure units ICT is not very good in most developing economies. As a consequence, many SMEs in developing economic areas are not yet able to install the latest internet network tools in their business processes to support e-commerce. Many previous and recent studies from developing economies have also confirmed that the overall situation of computer readiness in many developing and LDCs is inadequate and should be explored. Due to sufficient resources, much research has been conducted on the online preparation sector in developed economies,

but limited research has been conducted in developing economies in South Asia. So, this study will fill the gaps in the e-readiness literature and contribute to the knowledge of e-commerce by focusing on ICT SME characteristics in Pakistan.

**Figure 18: Categories of Literature/issues Adoption of E-commerce by SMEs
(A Conceptual Framework)**

Literature categories/issues	Research Questions
1. Overall characteristic and situation of SME 2. Usage of ICT infrastructure units	RQ1: What is the current situation of SMEs' e-commerce adoption in Pakistan?
3. The role of owner-managers/CEOs 4. Factors affecting e-commerce adoption	RQ2: What are the different electronic commerce adoption factors in the SMEs of Pakistan?
5. Role of government 6. Support of local business institutes	RQ 3: What strategies should be put in place to develop e-commerce adoption practices in Pakistani SMEs with the help of government(s) and local business institutes?

Source: Author

- 3. The role of owner-managers and management in raising awareness of ICT tools and e-commerce:** After reviewing previous studies on e-commerce adoption factors in developing and developed economies of various regions of the world, many researchers (Al-Qirim, 2007; Altayyar & Beaumont-Kerridge, 2016; Ghandour, 2015; Ghobakhloo & Tang, 2013; Oliveira et al., 2015; Rahayu & Day, 2015) discussed various factors related to the adoption of e-commerce. However, many researchers in developing economies have neglected the role of owner-managers and management at various levels in e-business awareness in the study of SMEs in developing economies of South Asian region. As a result, this study will highlight the leadership role and characteristics of owner-managers and management employees as well as its factors in the adoption of e-commerce in SMEs, and also ICT knowledge and awareness in e-commerce applications for different employees of SMEs in Pakistan.
- 4. Factors affecting SMEs' e-commerce adoption:** As previously discussed (see Appendix F), many researchers have cited the various e-commerce factors in the literature while integrating e-commerce into SMEs. However, limited factors have been identified in the context of the South Asian developing and LDCs – including Pakistan

(Baidoun et al., 2018; Lussier et al., 2016; Ghobakhloo & Tang, 2013; Kapurubandara & Lawson, 2008, Molla & Licker, 2005). Although many studies in the literature have been conducted on SMEs in Pakistan (Dar et al., 2017; Hyder & Lussier, 2016; Khaskheli & Jun, 2016; Seyal et al., 2004; Zafar & Mustafa, 2017), and have identified various issues, there are no recent studies on SMEs which provide all the relevant information. This is especially the case in relation to e-commerce adoption factors of SMEs and in discovering the leading role of owner-managers and its management characteristics in a broader measure. As a result, this study will fill the gaps in e-commerce and examine in detail the e-commerce adoption factors related to the development of Pakistan's SMEs, in the context of the South Asia region.

- 5. Role of government:** Many researchers (Al-Somali et al., 2015; Awiagah et al., 2016; Lawrence & Tar, 2010; Martinsons, 2008; Nazir & Zhu, 2018; Seyal et al., 2004) believe that government initiatives play an important role in e-commerce adoption, as they can potentially contribute positively to the development of e-commerce or – more negatively – create barriers. With support from the government, previous studies such as that by Yaseen, Dingley, and Adams (2015) had already attempted to remove some of the barriers to e-commerce adoption in the case of the Jordanian economy.
- 6. Local business support** However, some problems cannot be solved without the support of local authorities and their national institutes (Nazir & Zhu, 2018). Therefore, this study will examine the recent role of the GoP and local business institutions in raising awareness of the adoption of innovative technologies including e-commerce in SMEs of various sectors in the country.

4.7 Summary

This chapter examined the literature on the adoption and non-adoption of e-commerce in SMEs in many economies. The results of this chapter have shown the dynamics of e-commerce developments in the dimensions of SME characteristics, the use of ICT infrastructure units, the role of owner-managers and management, the factors influencing the adoption of e-commerce by SMEs and the role of government and support from local business institutions. The chapter also addressed previous studies of e-commerce adoption factors based in both developing and developed economies. After reviewing the dimensions of the e-commerce adoption literature and finding a relevant gap, this chapter proposed a conceptual framework based on six literature categories to provide answers to relevant research questions. The next literature chapter examines and develops a model that helps to uncover the hidden factors of e-commerce adoption of SMEs, using the different theories associated with the adoption of innovations such as e-commerce.

Chapter 5: Literature Review: Theories Associated with SMEs' E-commerce Adoption

5.0 Introduction

The previous chapters examined the context on the development of the internet and e-commerce, and on the literature of the adoption by SMEs of innovative technologies such as e-commerce in developing and developed economies. This literature chapter covers the various theories and models associated with the adoption of information technology by SMEs for e-commerce. The aim being to summarise the earlier factors associated with the adoption of e-commerce by SMEs, to choose the relevant framework and subsequently determine the model used in this study.

5.1 Theories of E-commerce Adoption

The adoption of e-commerce by SMEs is essential for the establishment of an economic system characterised by many economies (Kendall, Kendall, & Kah, 2006; Nasco, Toledo, & Mykytyn, 2008). Academics and practitioners in many economies have been focusing on e-commerce adoption for more than a decade. As a result, there are numerous theories, frameworks and models which attempt to show that e-commerce is an innovation in many fields and should be explored in more detail. In this regard, Poorangi, Edward, Nikoonejad, & Kardevani (2013) pointed out that one of the main factors was that the focus of e-commerce adoption studies was concentrated in most developed and Western economies such as the UK, Canada and the US and less attention has been given to developing economies. The researcher pointed out that others have placed great importance on developed economies because most research institutes and development centres are located there. The question becomes even more difficult because Al Sukkar and Hasan (2005) found that the transition of e-commerce to developing economies was not considered smooth. In addition, many studies on the adoption of e-commerce by SMEs in developing countries are generally descriptive and lacking a strong theoretical basis (Poorangi et al., 2013; Stylianou, Robbins, & Jackson, 2003; Wresch, 2003).

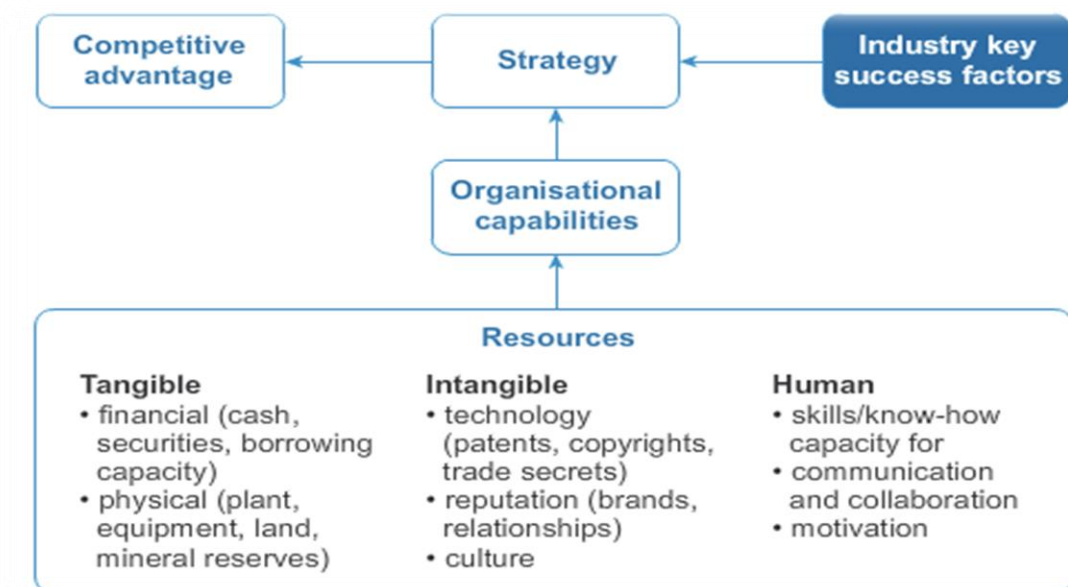
According to the analysis by Idris et al. (2017), seven different theories have been developed and used to determine the drivers of innovation – including the adoption of e-commerce at different levels of SMEs. Sila (2013) also examined different theories and adoption patterns associated with the e-commerce drivers of SMEs. However, after examining many theoretical studies related to the adoption of e-commerce by SMEs, Ali

and Alrayes (2014), and Awa, Ojiabo, and Emecheta (2015) discovered that the RBT (Barney, 1991), PERM model (Molla & Licker, 2005) and the TOE framework (Tornatzky & Fleischer, 1990) were those mainly used by these researchers in their studies on e-commerce adoption by SMEs. Therefore, the following section considers only these three theories.

5.2 Resource Based Theory

Barney (1991) argued that a sustainable competitive advantage derives from the resources and capabilities that SMEs control: they are valuable, rare, imperfectly imitable and not substitutable (as shown in Figure 19). These resources and capabilities constitute "tangible and intangible assets" that include human management skills, organisational processes and routines, and the information and knowledge an SME controls. The tangible includes financial and physical assets, and intangible assets consist of capabilities and technologies, attitudes, relationships and reputation of the company (Mayer, 2001; Saeedi, Dadfar, and Brege, 2012). Over the next decade, the spread of the Resource-Based Vision into strategic management and related disciplines was both dramatic and controversial and required considerable theoretical development and empirical testing.

Figure 19: Resource-Based Theory View



Source: Barney (1991)

RBT (Barney, 1991; Grant, 1991; Peteraf, 1993) attempts to explore the link between business-level resources (assets and capabilities) and a sustainable competitive

advantage. In addition, Barney (1991) suggested that organisations obtain sustainable competitive advantages by implementing strategies that enable them to use their internal strengths and respond to environmental opportunities while neutralising external threats and avoiding internal weaknesses. Ray and Ray (2006) also mentioned that these resources could be found internally or that SMEs could choose to exploit external resources. In the e-commerce adoption literature, RBT has been used to understand how SMEs create value from ICT assets and human organisational skills to embrace e-commerce (Idris et al., 2017). Levinthal and Myatt (1994, p. 46) argued that many of the capabilities of SMEs were getting worse due to lack of product market activity. More recently, Yang, Xun, and He (2015) demonstrated that RBT provides strong theoretical support in tangible, intangible and HR (i.e., e-commerce readiness), which contributes significantly to improving the performance of SMEs.

The sophistication of SME e-commerce websites contributes to business performance, but the capital investments of these SMEs in ICT training and e-commerce are not in themselves essential performance factors. Zhao, Huang, and Zhu (2008) studied the cause-and-effect relationships between strategic initiatives, information technology resources, and e-commerce capabilities and their roles in the implementation process in Chinese SMEs. They found that information-sharing capabilities are central and transferable forces that help translate ICT resources into collaborative process capabilities. In their 2004 study, Grandon and Pearson attempted to construct a model that explained how the perceived strategic value of e-commerce influenced the attitudes of leaders toward the adoption of e-commerce in US SMEs. The official results revealed a significant relationship between the perceived strategic value of e-commerce variables and the factors that influence the adoption of e-commerce in SMEs. Thus, owner-managers who view e-commerce as a strategic value for the company have a positive attitude towards its adoption.

In addition, Barney (1991) and Caldeira and Ward (2003) specifically mentioned that a firm's management team is an integral part of the theory as it is considered a resource that can generate a competitive advantage through research and development, and exploiting opportunities as they arise. Casson (2005) found a link between RBT and the adoption of e-commerce by SMEs and Teece and Pisano (1994) noted that RBT emphasises the importance of HR and highlights the role of owner-managers. Similarly, in addition to Caldeira and Ward, Ganotakis and Lindsay (2015), and Porter and Ketels (2003) also argued that entrepreneurial capabilities are the main human resource for SMEs and that the capacities of owners/CEOs and management employed by SMEs come from those of the entrepreneurs because entrepreneurs (owners/CEOs) have selected executives with specific skills and abilities. This study examined the HR of SMEs as the role of

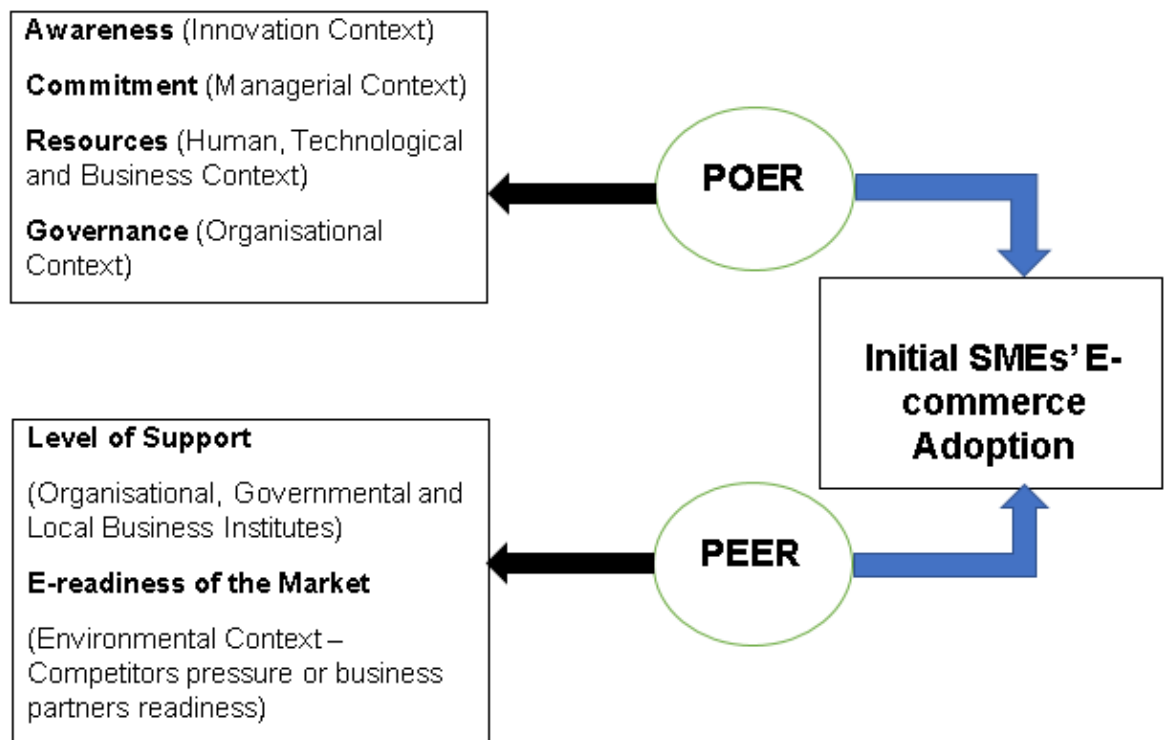
owners/CEOs and other management including managers and other employees at various departments. It has also been identified as an essential element in the adoption of e-commerce technology and e-commerce skills, experience and knowledge in e-commerce, innovation capacity and experience in the SME e-commerce sector.

In previous studies, authors such as Parker and Castleman (2009) have presented the benefits of RBT, and they emphasised that RBT increases the ability of SMEs to adopt and implement e-commerce in the business; including both tangible and intangible resources. However, Rangone (1999) criticised the fact that RBT does not consider all resources owned by SMEs, but instead focuses only on critical (or strategic) resources, i.e., those that are the basis of the sustainable competitive advantage of the SMEs. Rivard, Raymond, and Verreault (2006) also suggested that RBT has limitations such as assuming that different resources are used entirely in all big organisations but not in SMEs because of the shortage of HR (qualified managers of various fields), limited resources and capital flexibility. However, Parker and Castleman (2009) later argued that RBT alone does not account for the e-commerce adoption interaction among SMEs. This is because it assumes that all SMEs pursue exclusively economic objectives and that they already have the necessary resources. Given the particular nature of SMEs in developing economies, it can be considered that RBT alone cannot capture the interaction that occurs within them (Idris et al., 2017).

5.3 Perceived E-Readiness Model

To explain the critical determinants for the adoption of e-commerce by SMEs in developing economies, Molla and Licker (2005) formulated an e-commerce adoption model known as PERM – as introduced in Chapter 1, section 1.1 – in the US to measure e-readiness for e-commerce adoption in developing economies. The authors discussed four adoption contexts (innovation, management, human, technological and business and organisational) that are covered by two primary constructions of PERM: Perception of the Internal Electronic Preparation of the Organisation (POER) and Perception of the Electronic External Preparation (PEER). To support the PERM model, Ali and Alrayes (2014) studied the adoption factors of Bahraini companies and reported that POER measures factors within SMEs – e.g., commitment, governance, awareness, human, business and technology resources – which would contribute to the initial adoption of technology (e-commerce). On the other hand, PEER consists of two factors: level of support (organisational, governmental and local business institutes) and the state of preparation of the market (environmental context: the pressure of competitors or the preparation of business partners). Both concepts affect the initial adoption of e-commerce, as shown in Figure 20.

Figure 20: Perceived E-Readiness Model Concepts



Source: Molla and Licker (2005)

As introduced above, POER has four internal components:

1. **Awareness** (innovation context): refers to the perception, understanding and projection of an organisation of the benefits and risks of e-commerce.
2. **Commitment** (managerial context): refers to the support of key members of SMEs, especially their owner-managers and the administration to promote e-commerce. The commitment of owners-managers/CEOs to the implementation and adoption of e-commerce as a technology is a critical factor for the success of SMEs.
3. **Resources**: refer to the level of human, technological and business resources of SMEs. The provision of resources affects the ability of SMEs to respond to the challenges and opportunities of e-commerce.
4. **Governance** (organisational context): refers to the strategic, tactical and operational model that defines the hierarchical organisational structure of SMEs to establish objectives, allocate resources and make decisions.

PEER refers to an external environmental assessment and an organisation (Molla & Licker, 2005):

1. The level of support for e-commerce by the organisation, government and other local commercial institutes: the role of government is an essential factor that can influence the adoption of innovations, especially in developing economies. A government can encourage a country's private sector to adopt e-commerce by providing supporting infrastructure, legal and regulatory frameworks, and guidelines on the use of e-commerce.
2. The electronic preparation of market forces to participate in e-commerce (environmental context): refers to the application and use of e-commerce services by competitors, customers, suppliers and other partners of a company.

Idris et al. (2017) have presented a critical analysis of the prevailing theories on the adoption of innovation, assessing how appropriate they are to explain the adoption of e-commerce by SMEs in developing economies. They supported the model and argued that PERM assumes that the interaction of all the perspectives mentioned above creates a more dynamic framework for understanding the unique environment of SMEs in developing economies. Al-Hudhaif and Alkubeyyer (2011) examined the adoption factors of e-commerce in Saudi Arabia and confirmed that Molla and Licker's (2005) model was a comprehensive one that focuses on developing economies and encompasses environmental and organisational preparedness.

However, Tan et al. (2007) and Thong (1999) pointed out that one of the disadvantages of PERM is the exclusion of crucial sector descriptors, such as sector and size of firm, while Idris et al. (2017) thought that this aspect was covered by the TOE framework (Tornatzky & Fleischer, 1990). In addition, the inability to capture the academic background of owner-managers and management (including managers and other employees) is another problem when applying PERM (Aljifri, Pons & Collins, 2003). PERM does not recognise the influence of individual contextual factors in the adoption of e-commerce by SMEs but instead emphasises that organisational characteristics are essential for the development of e-commerce in SMEs. As discussed above, this study separately explored the individual contextual factors of owner-managers and the management of several SMEs, which affect the adoption of e-commerce. Ali and Alrayes (2014) also revealed that internal organisational factors, such as awareness, engagement, governance, commercial and technological resources would favour the adoption of e-commerce by various government entities. However, the results revealed that, although POER factors have a significant impact on the adoption of e-commerce, PERM has the disadvantage of excluding critical human resource factors that have a substantial impact on the adoption of e-commerce by SMEs in developing economies.

5.4 Technological-Organisational-Environmental Framework

Tornatzky and Fleischer (1990) developed a framework for organisations to adopt an innovation (e-commerce) and apply it in their business structure. In addition, the TOE framework identified several technological, organisational and environmental contextual factors that influence the decision of SMEs to adopt e-commerce. Figure 21 illustrates the TOE framework.

Figure 21: TOE Framework



Source: Tornatzky and Fleischer (1990)

As illustrated above, the TOE framework identifies three main aspects of the context of SMEs that influence the process through which it adopts and implements a technological innovation (e-commerce); Technological context, environmental context and organisational context. The technological context describes external and internal technologies relevant to SMEs. This includes current ICT practices of SMEs and internal ICT teams, as well as external ICT available to SMEs. The organisational context refers to the scope, size, financial constraints and overall strategy of SME innovation adoption. The environmental context indicates the situation in which SMEs run the business in a local environment: its competitors, industrial partners, local business and government relations and regulatory frameworks (Tornatzky & Fleischer, 1990). The structure of the TOE – as initially presented and then adopted in many studies on the adoption of ICT-related e-commerce – is a useful

analytical framework that can be used in developing economies to study the adoption and assimilation of ICT innovations. The TOE framework is based on a solid theoretical basis, consistent empirical support (see Appendix B for a literature review of TOE factor results in SMEs in different economies) and the potential for application to the innovation domains of information systems. However, it is noted that the specific factors identified in the three contexts may vary from one study to another.

The TOE framework is consistent with RBT (Barney, 1991) and PERM (Molla & Licker, 2005). In relation to RBT, Barney focused on the organisational capabilities of SMEs to create value from the assets of ICT and human organisation skills to adopt e-commerce. Both organisational capacities and assets (human and ICT) are considered internal and external characteristics of SMEs, as drivers of business innovation. RBT also emphasises the importance of the organisation's HR while embracing e-commerce as an innovation. These are identical to the technological (ICT) and organisational (human) context of the TOE framework, but the TOE framework (Tornatzky & Fleischer, 1990) also includes an additional essential element, an environmental setting that is lacking within RBT technology. With the environmental context, limitations and opportunities for technological innovation can be presented. In relation to PERM, Molla and Licker's model failed to cover individual factors related to owner-managers and management to identify characteristics which have a significant impact on the adoption of e-commerce by SMEs in developing economies. In addition, the PERM model excludes critical descriptors, such as the sector and the size of the company; aspects that are covered by the TOE framework.

In the previous literature, many researchers have used the TOE framework (Tornatzky & Fleischer, 1990) in their studies of SMEs in the context of different economies, different environments and over time. Examples include the adoption of electronic business (Zhu & Kraemer, 2005), adoption of ISO innovation (Martins, Oliveira, & Thomas, 2015), adoption of Enterprise Resource Planning (ERP) ICT applications (Awa & Ojiabo, 2016), adoption of big data innovation (Sun, Cegielski, Jia, & Hall, 2018), and e-commerce adoption (Al-Alawai & Al-Ali, 2015; Awiagah et al., 2016; Chatzoglou & Chatzoudes, 2016; Ghobakhloo & Tang, 2013; Rahayu & Day, 2015; Seyal et al., 2004) and B2B e-commerce adoption (Scupola, 2009). A summary of the detail of these studies is presented in Appendix B.

The table in Appendix B shows that different researchers in developed and developing economies provided information on various factors related to the TOE framework in their adoption studies. In these studies, three contextual elements of the TOE framework (technological, organisational and environmental) were used to discover the factors affecting adoption of e-commerce in SMEs. The technology context refers to internal and

external technologies relevant to the business. In these studies, the characteristics of ICT innovation were considered the most critical technological factors. Other technological factors include technological competence, relative advantage, quality of ICT infrastructure, perceived compatibility, benefits and perceived credibility (privacy and security). Among them, technological competence, resources, perceived credibility and readiness seem to be the most influential factors (Awiagah et al., 2016; Zhu & Kraemer, 2005). Technology resources were among the four characteristics of POER (Molla & Licker, 2005) which influence the adoption of innovation in organisations.

According to Rahayu and Day's 2015 findings, perceived benefits and perceived compatibility have a positive impact on the adoption of e-commerce by SMEs while perceived credibility consists of two elements: privacy and security. Security refers to the protection of information or the system against unauthorised intrusions or exits (Nysveen, Pedersen, & Thorbjornsen, 2005) and fear of the lack of security has been identified in other studies where it was considered a crucial factor in the development of e-commerce. According to Oliveira and Martins (2010), technological readiness relates to ICT technology infrastructure which supports the adoption of e-commerce in SMEs. Thus, such technological readiness depends on the availability of the latest computer infrastructure equipment (computers, the internet, hardware, software, telephone lines and other network devices). As a result, technological readiness has a positive influence on the adoption of e-commerce in SMEs. However, the studies of Molla and Licker (2005), Scupola (2009), and Seyal et al. (2004) have all shown that the poor quality of ICT infrastructure in most developing economies hampers the adoption of e-commerce by SMEs.

Organisational characteristics seem to be the focus of many studies at the organisational level – especially those on SMEs (Awiagah et al., 2016). Literature reviews have contextually highlighted organisational factors such as management support, financial commitment, company size and structure, organisational culture, and trust in the organisation as having a significant impact on the adoption of e-commerce in SMEs (e.g., Awiagah et al., 2016; Chatzoglou & Chatzoudes, 2016; Sun et al., 2018). Among these, a study by studies have found that firm size (Martins et al., 2015) and top management support is a critical factor for the adoption of innovation by developed economies and positively influences the adoption of e-commerce by SMEs in developing economies (Martins et al., 2015; Rahayu & Day, 2015).

The environmental factor refers to external influences such as pressure from customers/suppliers, pressure from one or more competitors, confidence in national institutes, external support from government and local business, regulatory environment

and environmental uncertainties that affect the adoption of e-commerce in SMEs. According to studies by Al-Alawi and Al-Ali (2015), Awa and Ojiabo (2016) and Rahayu and Day (2015), the pressure on clients/suppliers is related to the degree of pressure of customers/suppliers perceived by SMEs. The studies examined in table in Appendix B show that – in most cases – customers/suppliers have the power to pressurise an SME to adopt e-commerce as a technology. In addition, competitive pressure refers to the degree of pressure that the firm feels from its competitors in the industry (Oliveira & Martins, 2010). Empirical evidence suggests that the pressure of competition is a powerful driver of e-commerce adoption (Al-Qirim, 2007; Oliveira & Martins 2010; Zhu & Kraemer 2015). Thus, after reviewing the literature on the adoption of e-commerce, it was found that the greater the pressure from the business partners/customers and the perceived SME competitors, the more likely they were to adopt technology – specifically e-commerce – to remain competitive in the market.

However, studies of developing economies (e.g., Ghobakhloo & Tang, 2013; Molla & Licker, 2005; Seyal et al., 2004) suggest that lack of support from local governments and business, lack of regulation and policy e-commerce, and the deficiency of external infrastructure within the society of developing economies has a negative impact on the adoption of e-commerce. In relation to support, Zhu and Kraemer (2005) found that – perhaps unsurprisingly – SMEs receiving greater regulatory and government support are more likely to further develop the use of e-commerce. As shown in Appendix B, although both factors specific to e-commerce and the details of other related studies vary by context, the TOE framework is based on consistent empirical support. Based on the review of these adoption studies, all researchers examined the critical factors influencing the adoption of e-commerce in SMEs in three contexts of the TOE: technological, organisational and environmental. Studies such as Seyal et al.'s (2004) also investigated the adoption factors of e-commerce and identified various problems with the TOE framework that have influenced the adoption of e-commerce by SMEs in developing economies.

In addition, Huy, Rowe, and Truex (2012) used the TOE framework to determine the elements of e-commerce adoption in SMEs in Vietnam – an economy in transition. They built and tested an e-commerce adoption model that includes many internal and external factors identified in theoretical and empirical studies; and recommended the TOE framework as a basis for understanding the internal and external factors that can influence the adoption of e-commerce by all types of SMEs in Vietnam. In 2015, Ahmad et al. empirically examined the determinants of e-commerce adoption by Malaysian SMEs using the TOE framework. The results showed that e-commerce adoption in Malaysian SMEs is influenced by perceived relative benefits, perceived compatibility, management

characteristics and external change agents. In addition, Rahayu and Day (2015) examined the factors that affect SMEs in developing economies in adopting e-commerce and their model is based on the TOE framework. Within the model, 11 variables are proposed as factors influencing SMEs in the adoption of e-commerce. The findings of their survey of 292 Indonesian SMEs were that perceived benefits, technical readiness and computer experience were the main factors influencing Indonesian SMEs' adoption of e-commerce. After reviewing the studies on the TOE framework, many researchers in developing economies have used only three contextual elements: technological, organisational and environmental to determine the e-commerce adoption factors of SMEs in their country. However, this means they have largely ignored individual factors related to the leadership characteristics of owner-managers, managers and other employees at different levels. Therefore, factors related to the role of owner-managers and the characteristics of management employees need to be considered in the context of the TOE framework (Ghobakhloo & Tang, 2013) as they have not been studied earlier in the context of Pakistan as a developing economy.

Based on the above theoretical arguments and perspectives, the TOE framework (Tornatzky & Fleischer, 1990) is chosen as the theoretical basis for the development of this study. This choice is based on several considerations, as discussed by Rahayu and Day (2015) in their examination of the drivers of e-commerce adoption in Indonesian SMEs. They agreed that previous studies have largely recognised the structure of the TOE as a well-established framework for examining factors related to the adoption of e-commerce. As established, the TOE framework takes into account different contexts, not only focusing on technological contexts but also on the organisational and environmental contexts – hence its name (Morteza, Daniel, & Jose, 2011; Ramdani, Chevers, Williams, 2013; Sila, 2013; Tan, Chong, Lin, & Eze, 2009; Zhu, 2004). It is also recognised that a model covering many dimensions can provide better explanatory power than model with only one aspect (Molla & Licker, 2005; Rahayu & Day, 2015). The framework of the TOE is recognised as a model using an interactive perspective, assuming that changes in an organisation are understood not only by the individuals of an organisation but also by the characteristics of the organisation in which they operate. This interactive perspective allows the researcher to discuss all the factors and their interactions in a dynamic context (Molla & Licker, 2005) and is supposed to explain the adoption of innovation in e-commerce (Rahayu & Day, 2015).

From the literature review, Zhu and Kraemer (2005) found that the TOE framework has consistent empirical support in various information system areas and can be used to study different types of innovations in e-commerce. More importantly, the use of the TOE

framework in this study is based on both its attributes and its relevance to the context and objectives of this study. Other theories and models proposed (RBT and PERM model) seem to lack the overall approach of the TOE framework. Chatzoglou and Chatzoudes' (2016) study on Greek SMEs also strengthened the framework of the TOE and concluded that – contrary to other models and theories – the TOE framework included the environmental dimension; thus, becoming superior in the demonstration of the role of business associations in the adoption of e-commerce. In their 2006 study, Zhu, Dong, Xu, and Kraemer put forward the same argument and concluded that the framework of the TOE is more complete than the other models and theories proposed. Therefore, it can be concluded that the model of the TOE framework can be used in this study to identify the hidden factors of e-commerce adoption of SMEs in Pakistan.

Despite many positive views on the TOE there are, however, still critics of this theory, for example, Altayyar and Beaumont-Kerridge (2016), Ghobakhloo and Tang (2013) and Rahayu and Day (2015) in their respective studies within Saudi Arabia, Iran and Indonesia. One criticism, as proposed by Ghobakhloo and Tang, is that this model ignores the factors associated with individual attributes regarding the role of management employees and owner-managers in SMEs. Furthermore, they stated that the TOE framework provides a comprehensive theoretical basis for studying the determinants of e-commerce adoption in organisations of developing economies, but does not focus on individual factors, such as characteristics of owner-managers and management – including executives and employees. However, Pudjianto and Hangjung (2009) had previously confirmed that the TOE framework is flexible and can be further extended to accept and add more factors and categories that help to explore and find drivers and barriers related to the technology adoption. Zhu et al., (2006) further believed that with the TOE framework, the research could add more themes and sub-themes according to the study's findings. Therefore, this study draws from previous research and concludes that it is both possible and necessary to include an additional context; that of 'extended individual factors' that affect the adoption of e-commerce by SMEs in the context of Pakistan. This is because understanding the adoption of e-commerce by SMEs in developing economies requires models that are flexible enough to capture change (Ghobakhloo & Tang, 2013). The following section of this study explains each original dimension of the TOE framework as well as the extended dimension (extended individual context) and uses this TOE framework to reviewed factors identified in the literature.

5.4.1 Technological Contextual Factors

Technological contexts refer to the adoption of innovations using different ICT units and other related network technologies in the SME environment (Teo & Pian, 2004). This technological context represents the pool of technologies that can be adopted by an organisation (Scupola, 2009). These can be both the technologies available on the market and the current ICT equipment of an organisation. The decision to adopt a technology depends not only on what is available on the market but also on how these technologies correspond to technologies already owned by a firm (Chau & Tam 1997; Jeyaraj, Rottman, & Lacity, 2006; Tornatzky & Fleischer, 1990). Therefore, it refers to technologies available in SMEs and how technological contextual factors affect the adoption of e-commerce in SMEs (Chau & Tam, 1997). Rogers introduced the Technology Innovation Model (1995) and this has been widely recognised in the social sciences and research in the information sciences. According to Rogers, five critical factors in the technological context have influenced SMEs in their adoption of technological innovations: relative advantages, compatibility, complexity, elasticity and observability. However, a number of researchers (e.g., Ahmad et al., 2015; Awa & Ojiabo, 2016; Ismail & Mokhtar, 2016; Maryeni, Govindaraju, Prihartono, & Sudirman, 2012; Rahayu & Day, 2015) have confirmed that compatibility, relative change and complexity were consistent with the behaviour of technological innovation.

In addition to Rogers' technological factors, a number of researchers have also discovered other factors in the technological context (e.g., Altayyar & Beaumont-Kerridge, 2016; Maryeni et al., 2012; Mutula & Van Brakel, 2007; Molla & Licker, 2005; Shemi & Procter, 2013). These include technological preparation (Zhu et al., 2006), and the protection of technological systems and the security of online transactions (Scupola, 2009). Seyal et al. (2004) included various networking tasks while encompassing e-commerce activities and Pan and Jang (2008) added computer infrastructure and technology integration. However, among all researchers, the cost of technology-related implementations in developing economies has been most commonly cited (e.g., Al-Qirim, 2007; Ismail & Mokhtar, 2016; Osturk, 2010; Rahayu & Day, 2015; Shah Alam, Ali, & Mohd Jani, 2011; Zhu et al., 2006). Other technological factors are discussed as follows:

5.4.1.1 Quality of ICT Infrastructure Units

ICT infrastructure units provide SMEs and the local community with the platform to share various online content. Thanks to the availability of the internet as an ICT, the tool provides technical and other computer skills to the management of the business; tools that are necessary for the development and maintenance of various innovative applications such as

e-commerce (Awa, Ojiabo, & Emecheta, 2015; Eze, Olatunji, Chinedu-Eze, & Bello, 2018). ICT infrastructure therefore represents the technologies (hardware and software) that enable SMEs to develop e-commerce processes (Chatzoglou & Chatzoudes, 2016). Also, according to RBT (Barney, 1991), competitive advantage rests on the resources of the firm.

Studies by Al-Qirim (2007) and Kozma and Vota (2014) have shown that ICT infrastructure units with an internet connection in most developing economies are neither reliable nor accessible for the local community and SMEs. This is due to lack of information and telecommunications systems. As a result, SMEs in most developing economies are still not ready to adopt e-commerce due to this lack of network infrastructure and this impacts especially upon individual users and new entrepreneurs (new businesses, including SMEs). Thus, the latest ICT infrastructure units are needed to connect regions of the most developing economies. In the absence of adequate and necessary infrastructure, the potential benefits of using e-commerce may not be felt. Lawrence and Tar (2010) confirmed that, in the case of telecommunications, in most developing economies the infrastructure is not at the same level as it is in other developed and Western economies. As a result, internet access in most developing economies is slow and expensive. This improvement in infrastructure is critical since studies (e.g., Chatzoglou & Chatzoudes, 2016; Iacovou, Benbasat, & Dexter, 1995) have shown that SMEs with more ICT infrastructure environment are more likely to adopt e-commerce.

5.4.1.2 Online Payment Methods

The availability of adequate and credible digital payment channels, such as credit and debit cards, PayPal, and online and phone card payment systems is helping many SMEs sell their products online with minimal effort. However, no online payment environment or institute contributes to the construction of transactional integrity and, consequently, to the development of e-commerce and the payment systems in developing economies (Oxley & Yeung, 2001). Lawrence and Tar (2010) found that for the adoption of electronic payment, users needed credit and debit cards to purchase products online. However, in most developing economies banks and financial institutions had no national clearing systems and thus potential customers are cautious and potentially misled about online shopping. As a general rule, in developing economies, users cannot easily buy products online because credit card payments are generally not accepted without a signature. Facsimile confirmation is also required to place an order and make payment in developing economies (Efendioglu, Yip, & Murray, 2004).

5.4.1.3 Internet Speed

Due to the poor IT infrastructure, the speed of the internet to manage an online business in developing economies is very slow (Molla & Licker, 2005). Shemi and Procter (2013) confirmed that this slow speed is preventing SMEs in Botswana (a developing economy) from adopting e-commerce. Slow internet speeds do not only affect ordering and payment. Indeed, internet users in developing economies are often not interested in buying products online because they cannot quickly check and browse descriptions and general product characteristics using organisational web pages (Kabango & Asa, 2015).

5.4.1.4 Privacy and Security Issues

The development of the internet has facilitated market globalisation and cross-border e-commerce but has also pushed internet fraud to new levels. Consumers risk their identities being stolen which is threatening confidence and undermining the growth of e-commerce (OECD, 2016). Also, in the development of e-commerce using ICT, many developing companies are facing security and online privacy issues (Jahanshahi & Zhang, 2013; Zhang, Deng, Wei, & Deng, 2012). Security defines the ability to protect consumer information and their transport data during transmission (Awa & Ojiabo, 2016). According to Chong and Chan (2012) and Kima, Taa, Shin, and Kima, (2010), excellent organisational security and user privacy systems help improve online user confidence and increase the adoption rate of e-commerce in SMEs; not only in developing economies but also in developed countries. Customer perceptions of online security, privacy and trust in online payments – as adopted by online business – have become a critical factor in the evolution of e-commerce applications in developing economies. As a result, it is clear that online arguments about consumer safety and end-user policies have reflected mainly on the importance of transaction security systems in firms in developing economies (Gray, 2001; Warkentin & Vaughn, 2006).

Earlier work has also highlighted the online security and privacy concerns associated with the adoption of e-commerce in SMEs in developing economies (Humphrey et al., 2003; Oreku, Li, Kimeli, & Mtenzi, 2009). The issue of online security is now widespread in many SMEs as customers in developing economies do not have a regulatory framework for security breaches in e-commerce transactions (Scupola, 2009). Shemi and Procter (2013) also found that most developing economies do not have adequate laws on online security and privacy for e-commerce governance. Any delay in implementing a regulatory framework for online customers will likely reduce e-commerce initiatives in SMEs. A study by Awa & Ojiabo (2016) showed that security and confidentiality threatened the main obstacle to the adoption of e-commerce in SMEs. People are less likely to use internet facilities in more

advanced forms because of security and access issues and often leave websites when their personal information is requested.

5.4.1.5 Different Web Language and Content

In many SMEs, particularly in developing economies, the difference in language and difficulty in understanding web content is another contextual technological factor for the adoption of e-commerce. Language has been identified as a socio-cultural barrier that hinders both access to information and internet participation in e-commerce. A large number of people in developing economies are illiterate, have little information about information technology, and have limited access to ICT and information on the internet. When they are able to access this information, it is often in a different language, with different content that requires higher levels of education than they may possess (Oliveira & Martins, 2010, 2011) to understand internet content (Lawrence & Tar, 2010; Shemi & Procter, 2013).

5.4.1.6 Electricity Shortages

Electricity shortage is another technological factor affecting the adoption of e-commerce in SMEs in developing economies – mainly in the South Asia region. Without electricity, SMEs cannot use ICT units to manage the e-commerce process. Studies (e.g., Hyder & Lussier, 2016; Mutula & Van Brakel, 2007; Oreku et al., 2009; Shemi & Procter, 2013; SMEDA, 2017; Uzoka, Seleka, & Shemi, 2007) have shown that the lack of consistent power in developing economies has prevented many SMEs from adopting innovative technologies. Even when the internet is available, its continued use in SMEs is hampered by lack of energy, especially in rural areas.

5.4.2 Organisational Contextual Factors

The organisational context represents the internal factors of an organisation that influence the adoption and implementation of innovations (Tornatzky & Fleischer, 1990). Previous studies in both developed and developing countries have confirmed that contextual and organisational factors have both a positive and negative impact on organisations while they are integrating e-commerce technologies into their business (Awiagah et al., 2016; Ghobakhloo & Tang, 2013; Hoti, 2015; Scupola 2009; Seyal et al. 2004; Shemi & Procter, 2013). All these researchers identified organisational factors as internal factors influenced by the general characteristics and the current position of SMEs. This means that: the context of the organisation refers to the characteristics of SMEs and their resources, and research into the adoption of ICTs reveals many factors that can influence the adoption of e-commerce within SMEs. Factors such as organisational culture issues (Scupola, 2009), the size of the firm (Awa & Ojiabo, 2016; Eze et al., 2018; Oliveira & Martins, 2010; Zhu et al.,

2006), financial problems (Ghobakhloo et al., 2011; Picoto, Bélanger, & Palma-dos-Reis, 2014; Thong, 1999), e-readiness and ICT culture (Oliveira & Martins, 2010) were considered typical factors that can both encourage and discourage SMEs from adopting e-commerce services.

5.4.2.1 High IT Infrastructure Costs and Financial Problems

The OECD (2017a) report confirms that the costs of adopting and implementing ICT resources and upgrading e-commerce network systems in many organisations in developing economies are prohibitive. Even where systems are in place, it is also clear that the high cost of ICT infrastructure in many developing countries does not allow SMEs to adopt new technologies and influence the growth of e-commerce (Ghobakhloo & Tang, 2013; Sun et al., 2018). As a result, the majority of SMEs in developing economies are at the forefront of ICT infrastructure requirements, a competitive business environment and a regulatory framework for e-commerce, as well as practice on the internet (Lawrence and Tar, 2010).

In the literature, Mutula and Van Brakel (2007) argued that the funding issue was also invoked to prevent the adoption of e-commerce in SMEs in terms of the number of financial resources that a company can use to buy ICT devices for economic purposes, implementation of e-commerce, payment of consulting fees and training of staff and maintenance of the website and other infrastructure. More recently, Al-Alawi and Al-Ali (2015) stated that in most developing economies, internet access prices are a critical factor in the use of online activities, including e-commerce, for internet users and have a significant impact on the adoption of e-commerce in individual SMEs. Developed economies tend to have more users of the internet and networks, and e-commerce is booming in these economies because of the cost flexibility of the technology. Bagale (2014) also stated that cost is a critical factor influencing the activities of SMEs due to high investment in hardware, software and staff training. Therefore, inexpensive network infrastructure is needed to enable developing economies to participate in the global e-commerce market while the development of reliable fixed communication networks is a crucial area of e-commerce, especially in developing economies (Ghobakhloo & Tang, 2013; Zhu & Kraemer, 2005).

5.4.2.2 Structure and Size of the Organisation

Another factor in the organisational context cited by researchers (e.g., Ghobakhloo & Tang, 2013; Kartiwi et al., 2018; Rahayu & Day, 2015; Simpson & Docherty, 2004) and identified as a determining factor in the adoption of e-commerce by SMEs, is the size of the business. Indeed, the size of the company is linked to its ability to provide specific resources, both

financial and human. The larger the company, the more resources it can provide and the more likely it is to adopt e-commerce technology. In addition, Hachimi, Salahddine, and Hamid (2017) confirmed that the size and structure of an organisation was the most frequently considered factor in previous e-commerce adoption studies. Some of the most cited organisational factors in the literature (Scupola, 2009) are the organisational size (Iacovou et al., 1995) and organisational structure (Jeyaraj et al., 2006). Size and management structure are also the most critical factors that affect the implementation of ICT. By their very nature, the size of SMEs presents other organisational challenges in relation to the adoption of e-commerce; involving limited financial resources and a smaller management structure. In line with this, Premkumar (2003) found that even within SMEs, large firms in the small business group were more likely to adapt communication technologies than small firms.

Similarly, the larger firms in the SME group tend to adopt more sophisticated information systems because they have more resources (Thong, 1999). Huy et al.'s (2012) study of the importance of organisational determinants as drivers of adoption also found that the size and structure of SMEs in terms of innovation was positive and statistically significant. Thus, researchers including Low, Chen, and Wu (2011), and Oliveira and Martins (2011) suggest that the size of the SME in developing economies is indicative of the adoption resources available within the organisation. This is because the size and structure of the firm have a positive influence on the adoption of e-commerce in the organisation.

5.4.2.3 Organisational E-readiness

The organisational context of the state of readiness for electronic ICT is defined as the degree of knowledge, resources, commitment and governance that allows an SME to adopt the e-commerce (Hachimi et al., 2017). The adoption of e-commerce has often been positively linked to the condition of electronic preparation of ICT infrastructure for SMEs. Previous studies, mainly in developing economies (Pan & Jang, 2008; Seyal et al., 2004), have shown definite links between organisational e-readiness and the adoption of e-commerce. Further, researchers such as Al-Alawi and Al-Ali (2015), and Jeyaraj et al. (2006) suggest that with better ICT infrastructure, and the availability of the latest ICT resources including organisational websites, SMEs are more likely to adopt e-commerce in the organisations. Consequently, they are also more likely to adopt e-commerce applications with better online security measures.

5.4.2.4 The Culture of Innovation

The introduction of the culture of innovation within an organisation helps many SMEs solve their business process problems, which leads to the creation of a new e-commerce culture (Hachimi et al., 2017). This new organisational culture is helping many SMEs improve the decision-making process for managing the adoption of e-commerce; in both developed and developing economies (Mirchandani & Motwani, 2001). The new business culture of innovation can also influence the adoption of e-commerce which can, therefore, be a critical success factor for the development of innovations in developing economies (Oliveira & Martins, 2010). In their 2009 study, Furnell and Thomson looked at different cultures in developing economies in relation to the adoption of innovation, and found that a culture of innovation had a positive effect on the adoption of e-commerce by SMEs. Research also suggests that organisational beliefs and cultural values related to innovation e-commerce adoption policies play a critical role in adapting an organisation's behaviour; particularly in developing economies (Hachimi et al., 2017).

5.4.3 Environmental Contextual Factors

The environmental factor is the area in which the organisation establishes its activities (Tornatzky & Fleischer, 1990) or, in other words, concerns the external environment (Scupola, 2009) and the explanation of how such factors influence the adoption of e-commerce (Teo & Pian, 2004). Competitive pressure from trading partners such as suppliers and customers (e.g., Iacovou et al., 1995; Jeyaraj et al., 2006) are critical environmental pressures related to the SMEs' adoption of e-commerce. Other national factors such as the role of government, international trade policies (Al-Qirim, 2007; Ismail & Mokhtar, 2016; Kuan & Chau, 2001; Yang et al., 2015) and natural disasters (Shemi & Procter, 2013) also influence the adoption of e-commerce in SMEs. A brief overview of the contextual environmental factors follows.

5.4.3.1 Role of Government

The role of the government in facilitating the adoption of e-commerce by SMEs has not been ignored in many countries and government initiatives play a vital role in the development of e-commerce in a country's commercial sector (Simpson & Docherty, 2004). Further, government intervention is often seen as essential to support technological developments in SMEs and government can support the country's business sector by creating a supportive system. This includes providing a suitable legal environment, assisting local business institutes in adopting favourable and effective technology policies for SMEs, and providing financial and technological assistance through government financial

regulatory agencies and banks, to improve the ICT infrastructure for SMEs and enact laws and regulations that promote e-commerce (Scupola, 2009). According to Al-Qirim (2007), the institutional environment created by governments in the form of policies and interventions is essential for the economic development of developed and developing countries. In support of this statement, researchers from developed economies (Lim et al., 2018; Martinsons, 2008; Pease & Rowe, 2003) have stated that the status of SMEs in developed economies in adopting e-commerce and e-business use is higher, as governments in advanced economies support their business sectors to enable e-commerce ICT infrastructure. However, the OECD (2004) noted that governments in developing and LDCs – particularly those in South Asia – were generally more concerned with issues of corruption, poverty, elimination of hunger and a higher illiteracy rate. In studying the role of government support, Jeon, Han and Lee (2006) reported that it is the most decisive factor in the adoption of e-commerce by Korean SMEs. Further, Chatzoglou and Chatzoudes (2016) and Durbhakula and Kim (2011) concluded that the development of e-government which promotes online participation, as well as the government's vision and policies have a statistically significant effect on the development of e-commerce.

While studying the role of government in developing economies, Shemi and Procter (2013) and Lawrence and Tar (2010) concluded that government should help SMEs promote the use of ICTs, offer training and establish a regulatory framework. Competition among many service providers – regardless of the economy – is a critical area in which government policies can positively impact access, investment, and adoption of e-commerce innovations. It is therefore crucial that governments in developing countries and LDCs provide open and competitive telecommunications markets with the help of different ISPs; offering a wide range of technological options and good network services (including broadband) to users, who then selected various modern technologies and affordable broadband services to support e-commerce.

5.4.3.2 Trade Policies and Tariff Barriers

The restriction of free trade policies is one of the critical issues considered as a key factor in the adoption of e-commerce by SMEs. This restriction is due to the monopoly exercised by the government of the countries of the national telecommunication sectors, and the import duties to obtain the most recent computer infrastructure. According to Lawrence and Tar (2010), the elimination of strict controls and deregulation of telecommunication systems is necessary for many developing countries to establish ICT infrastructure based on SME-friendly and straightforward trade policies. With the help of simple and effective trade policies, it is possible for organisations to make the most of the ICT context for the

widespread use of ICT in various development sectors of many developing countries (Alrawabdeh, 2014). Irwin (1992) also pointed out that developing economies were resorting to a series of measures to implement their trade policies. A popular option, especially in commodity-exporting countries, was to grant a monopoly to a given business. Tariff barriers were ubiquitous, as were non-tariff barriers such as quotas and licenses and exchange restrictions frequently imposed significant additional taxes on trade. In studying the report of the World Bank, Martin (2001) argued that the widespread use of non-tariff barriers in developing economies created particularly severe problems for both managing trade policies and the quality of trade governance in general.

5.4.3.3 Trading/Business Partners Pressure

It is not only organisations who are responsible for upgrading their existing systems by taking ICT initiatives that support projects related to e-commerce. It is also the responsibility of business partners to lobby organisations to transform the traditional method into e-commerce and engage in online sales and e-commerce transactions (Leung, Lo, Fong, & Law, 2015). Previous research (e.g., AlBar & Hoque, 2017; Kabanda & Brown, 2017) found that adoption in developing economies was motivated by pressures from various clients and business partners. Kaun and Chau (2001) also indicated that an organisation could adopt and implement e-commerce as a new business tool if its trading partners influence the business process, as SMEs may feel compelled to resort to e-commerce if their trading partners either request it or recommend it for future work. Further, Gibbs and Kraemer (2004) reported that large companies have previously coerced their subsidiaries and suppliers by using innovative e-commerce to connect to global production networks to grow their business. In support of this, other research (e.g., Dholakia & Kshetri, 2004; Kurnia et al., 2015) also confirmed that many SMEs in developing economies are adopting e-commerce as an innovative tool due to intense pressure from their trading partners. As a result, both new SMEs and existing ones which are growing SMEs can also face the same pressure – especially from large companies and their trading partners.

5.4.3.4 Competitor Pressure

In the local market, relationships between market players or competitors in the same sector also affect the overall structure and decision-making of an organisation's management during the process of making e-commerce a commercial tool (Sin et al., 2016). These relationships determine the extent of competition and rivalry in the industry and play a vital role in the adoption of e-commerce. Thus, an organisation may be under competitive pressure as more and more businesses adopt e-commerce as a business tool and must adapt to remain competitive in the marketplace (Garg & Choeu 2015; Kaun & Chau, 2001).

Vilaseca-Requena, Torrent-Sellens, and Jimenez-Zarco, (2007) also found that there is a significant link between competitive pressure and the adoption of e-commerce. The plausible argument for this observation is that if innovation directly affects competition, the adopter will then be encouraged to adopt the technology. According to Sandy and Graham (2007) and Ochola (2015), the intensity of competition is related to the degree of adoption of e-commerce and the pressure of competition is a determining factor in the degree of e-commerce adoption by SMEs. Further, Chong, Ooi, Lin, and Tang (2009) explained that an organisation's decision to adopt e-commerce as a technology could be motivated by competitive pressure and expectations of market trends. Ochola (2015) confirmed that there is also a link between the intensity of competition in an industry and the degree of adoption of e-commerce. However, only a few studies have examined the impact of this factor on e-commerce adoption in developing economies (Ahmad et al., 2015; Al-Qirim, 2007; Wymer & Regan 2005).

5.4.3.5 Natural Disasters

Previous research (e.g., Garg & Choeu, 2015; Kufandirimbwa, Hapanyengwi, & Kabanda, 2012; Shemi & Procter, 2013) – mainly in developing economies – confirmed that environmental and natural disasters also affect the development of e-commerce. For example, in the years 2000 and 2010, floods, earthquakes and tsunamis in Brazil, Japan (a developed economy) and in Haiti affected national telecommunications infrastructure and business owners; stopping and closing much of the ICT infrastructure and business. Natural disasters have also damaged many communication channels with the result that SMEs are facing severe problems since everything has been completely swept away by these disasters.

5.4.4 Extended Individual Contextual Factors

In addition to the three contextual factors of the TOE described above, the individual contextual factors (role of owner-managers, knowledge of ICT (computer skills) by managers/executives and employees and awareness of e-commerce) are also considered key determinants of SMEs' e-commerce adoption. Therefore, this study extends the TOE model of Tornatzky and Fleischer (1990) for the following reasons:

- Most SMEs in Pakistan are sole proprietor businesses. Thus, there is a need to understand the role of the owner-managers in embracing e-commerce as a business tool (Hyder & Lussier, 2016; Raza et al., 2018).
- Due to high training costs, many SME employees are not well trained and have limited ICT skills to use e-commerce applications (Bhutta et al., 2008). Therefore, this study

also takes into account the role of other members of staff, such as managers and employees (especially senior employees); who are an essential element of the e-commerce adoption process.

- The framework adopted by Ghobakhloo and Tang (2013) focuses on Iranian SMEs as a developing economy. Given that this study focuses on the context of Pakistan – as a developing economy in South Asia with a different context – a different broad framework may be needed to explore the individual factors of SME's e-commerce adoption. This is because in most SMEs; a strategic decision is highly dependent on owner-managers (Ghobakhloo & Tang, 2013; Oliveira et al., 2015; Rahayu & Day, 2015), and cultural differences between Iran and Pakistan may affect such decisions.
- Cloete et al. (2002) also found that the adoption of e-commerce by SMEs depends primarily on the acceptance of innovative technology by the business owner as well as the awareness of employees and managers. This is reasonable because structural SMEs tend to centralise, and the owner-manager thus plays a crucial role in any commercial decision-making (Jude & Adamou, 2018).
- Drew (2003) also stated that in SMEs, the position of individuals members of management is essential because they are supposed to be the main actors within the organisation to accomplish the tasks of the firm.
- Demirbas, Hussian, & Matlay (2011) and Shemi and Procter (2013) have argued that staff members occupying managerial positions perform different tasks and most SME tasks are controlled by the owner-managers of the organisation. Their roles should, therefore, be considered in order to find out e-commerce adoption in the context of developing economies.

5.4.4.1 Characteristics of the Owner-manager and Knowledge of Innovation

The individual factors identified in the literature were related to innovation know-how, e-commerce knowledge, e-commerce experience, and active participation in the adoption of critical systems in the field of SMEs' e-commerce (Elbeltagi et al. 2016). Chuang, Rutherford, and Lin (2007) studied the effect of owner demographics on the adoption of e-commerce by US SMEs. The results showed that top management's innovative experience plays a vital role in the success of e-commerce projects. Further, Wojtkowski and Hardesty (2001) suggested that for e-commerce technologies to be effective, owner-managers and CEOs need to have a practical and reasonable knowledge of new technologies. Past studies in the information sciences have also highlighted the importance of the involvement of senior leaders in both small and large firms, and the role of individual participants in the adoption process in SMEs in developing economies (Eze et al., 2018; Yap, Soh, & Raman, 1992). However, Elbeltagi et al. (2016) argued that the general nature of SMEs as

businesses in which the owner assumes the majority of long-term planning decisions, is the main reason why managers tend to participate in technological decisions.

In addition, Fink (1998) reported that knowledge of ICT among owner-managers is another feature of the adoption of e-commerce in many SMEs. According to the concept of "knowledge factors", as explained by Attewell (1992), ICT expertise and the development of computer knowledge of different users can facilitate and accelerate the adoption of the latest innovations such as e-commerce. Studies (e.g., Karakaya & Shea, 2008; Shemi & Procter, 2013) have also indicated that an active owner-manager usually transforms SME goals and business structure to develop the organisation further. When the owner-manager of the SME is inactive and does not understand the importance of innovation in e-commerce, the growth of the company is stifled.

Existing studies (Caldeira & Ward, 2002; Cloete et al., 2002; Hong & Zhu, 2013; Wilson et al., 2008) have also established a combination of views and attitudes of owner-managers on the adoption of e-commerce and the use of ICT units that play a vital role in the development and growth of e-commerce. The adoption of e-commerce is an essential contribution to the development of the business environment, which helps many SMEs to adopt the e-commerce structure in their business and to improve the skills and knowledge of manager/CEOs in the use of the latest ICT technologies. A study by Ghandour (2015) confirmed that in SMEs, it is the owner-manager who initiates participation in the e-commerce project and sets a clear goal. Moving forward, the owner-manager needs to be enthusiastic and passionate, believe strongly in the benefits of e-commerce and commit to viewing e-commerce as a critical part of the organisation. Similarly, in earlier research Scupola (2009) found that owner-manager characteristics were the most critical determinants of e-commerce adoption in Australia and Denmark. However, in most developing economies, training and knowledge of owner-managers and other managers in ICT and e-commerce are inadequate. It is, therefore, impossible to quickly understand the concepts of e-commerce and adopt them in the future.

5.4.4.2 IT Knowledge and Innovation Adoption Attitude of Employees

In their 2004 report, the OECD found that SMEs do not have the necessary human technology resources for ICT and e-commerce, as they focus only on day-to-day business operations and – for lack of time – are unable to understand new internet technologies. Even when SMEs are aware of the potential benefits of adopting e-commerce as a business tool, they need experienced and knowledgeable innovation staff. SMEs that have already adopted the internet and e-commerce as technology are likely to be part of the business market because they employ skilled employees and have a reasonable knowledge of

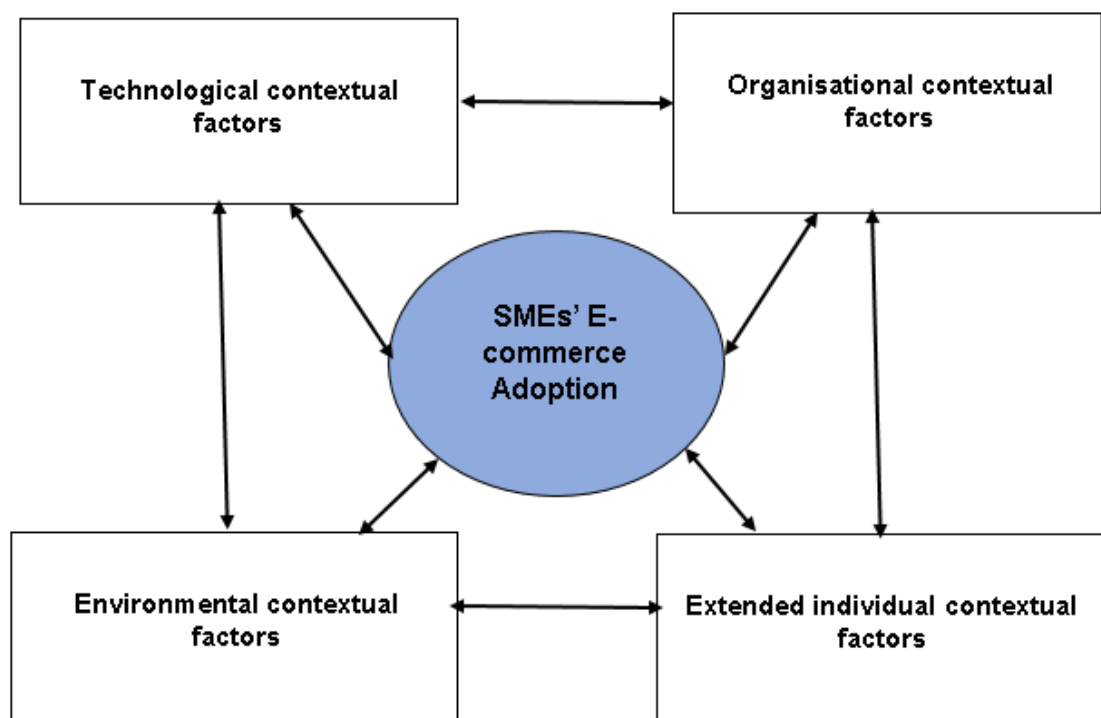
specific technology. A 2001 study by Mehrtens, Cragg, and Mills on SME ICT companies with between three and 80 employees suggested that many SMEs had adopted internet technologies in their work environment, where employees understood the use of the internet as a technology. Interestingly, the study also found that employees were not necessarily ICT professionals, but simply people interested in technology.

In a similar vein, Kiplangat, Asienga, and Shisia (2015) reported that in Kenyan SMEs, ICT knowledge levels among executives had a significant influence on respondents' adoption of e-commerce. In an earlier study within the same country, Kenneth, Macharia, Ayodo, and Eunice (2009) found that the level of technical and ICT knowledge (computer literacy) of managers and other employees in various departments affected the e-commerce adoption of SMEs. Earlier still, Koh and Maguire (2004) noted that technological change and its impact on the number and skills of the workforce was a significant challenge for most SMEs. In particular, smaller organisations find it challenging to justify a substantial financial commitment in a field that they do not consider to be their main activity. Around the same time, Simpson and Docherty (2004) found that in Australian SMEs, internet use was limited by lack of skills, knowledge and low-skilled staff while Taylor and Murphy (2004) found that many SMEs at that time did not have the computer skills needed to engage in the digital economy. Some may have computer enthusiasts like owner-managers, but most businesses do not. They noted that the lack of personnel to implement computer applications is a separate aspect of this same issue. It can be difficult or too expensive for an SME to hire people with technical experience to develop ICT strategies for the organisation.

Many researchers in the literature have identified the need for owner-managers and other managers as well as SME employees, to receive adequate innovative training if they are interested in the adoption of e-commerce applications in their organisations. Studies by Scupola (2009) and Thong (1999) found that employees' ICT knowledge and attitudes, as well as their limited resources, were critical factors in the adoption of e-commerce. Interestingly, researchers in both developing and developed economies have agreed that one of the critical criteria for the successful adoption of e-commerce in SMEs is the level of training of executives and employees (Al-Qirim, 2007; Awiagah et al., 2016; Ghobakhloo & Tang, 2013; Martins et al., 2015; Sarosa & Zowghi, 2003). However, in many SMEs, employees are still unable to communicate and perform better by conducting e-commerce and ICT activities. To get access to international business and e-commerce markets, SME employees are required to communicate electronically via keyboard systems and to do their best during e-commerce adoption activities (Al-Qirim, 2007; Nazir & Zhu, 2018).

In conclusion, after reviewing the theories associated with the adoption of e-commerce by SMEs, this study created an extended TOE model which is shown in Figure 22. The proposed model explains the three contextual dimensions of the TOE framework (technological, organisational and environmental factors), with an additional dimension (extended individual factors) to determine the characteristics of owner-managers and the role of other managers and employees of SMEs. This extended framework was used to collect relevant data for this study through literature reviews, documentary and SME websites analysis, observations and face-to-face and telephone interviews with owner-managers and other key managerial participants; to identify critical factors that influence the successful adoption of e-commerce in Pakistani SMEs.

Figure 22: Adopted Extended TOE Model for this Study



Source: Author

5.5 Summary

This chapter examined three theories and framework for adopting innovations, and proposed a model for the adoption of e-commerce by SMEs. This model is based on previous research studies on the adoption of innovations that were based in economies in different regions, and which covered RBT, the PERM model and the TOE framework. It was

established that RBT derives resources and capabilities that are controlled by SMEs, including human management skills while the PERM model focuses on developing economies and encompasses the organisation's electronic and environmental readiness. The TOE framework identified three contextual technological, organisational and environmental factors that influence the decision of SMEs to adopt e-commerce. As a result, this chapter highlighted the second research objective, which was to develop a model to identify various factors related to the adoption of e-commerce by SMEs. This model proposed four contexts: technological, organisational, environmental and extended contextual determinants that influence the adoption by SMEs of e-commerce innovation. Environmental and organisational characteristics were adopted from the TOE and PERM and individual characteristics from the RBT and after the extension of the TOE framework. The technology features from the TOE framework describe the external and internal technologies relevant to SMEs that can influence the adoption of e-commerce. The final step examined previous studies that had adopted the TOE framework and applied it in a number of areas to identify the determinants of innovation adoption. After the combination of all relevant adoption theories, an extended TOE model was proposed and used for this study. The literature has shown that only one study in Pakistan; that of Seyal et al. (2004) applied the TOE framework to identify factors that affect SMEs while embracing e-commerce in different sectors. As a result, this study extended the scope of the TOE framework to an additional category to explore the individual characteristics of owner-managers and management – including managers and other employees from various departments – in a broader context to identify adoption patterns of e-commerce innovation. The next chapter discusses the research philosophies and methodologies used in this study and provides justification for their use.

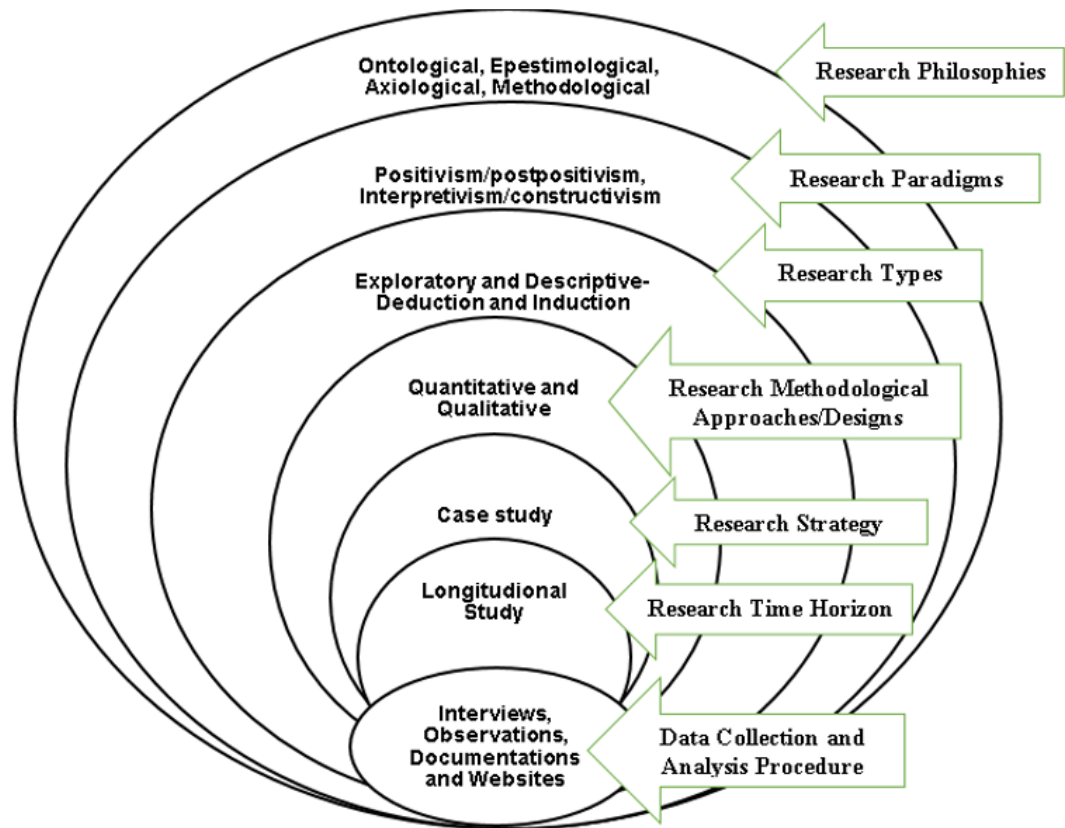
Chapter 6: Research Philosophies and Methodologies

6.0 Introduction

Many developed economies have adopted the latest ICT tools for the development and adoption of e-commerce as an innovation; mainly in SMEs. However, in relation to SMEs in developing economies, very few developments have taken place regarding the adoption of e-commerce. The previous chapters of this thesis reviewed a wide range of publications that provide information on the adoption and development of e-commerce in SMEs in both developing and developed economies. The main objective of this study is to uncover the hidden factors behind the adoption of e-commerce between different SMEs in the developing economy, such as Pakistan; a context in which there have been few studies on the subject of e-commerce. Therefore, this chapter examines the methodology of qualitative research in relation to the choice of the appropriate research philosophy, which was based on several factors and phases. The research design process in this study is divided into different main sections based on the "research onion" (as shown in Figure 23), as explained by Saunders, Lewis, and Thornhill, (2016, p.124).

Each survey is based on underlying philosophical assumptions about what constitutes "valid" research and which research methods are appropriate for the development of "knowledge" in the specific study. The research philosophy adopted by different researchers is based on key assumptions about their worldview (Creswell & Creswell, 2018; Denzin & Lincoln, 2018; Saunders et al., 2016). These assumptions support the research design strategy and the methodologies chosen for the study (Saunders et al., 2016). The research onion can represent the different routes or centres available to choose first the appropriate data collection techniques and then the analysis procedures. The centre of the onion gives an idea of exactly how to collect the data to answer research questions. This centre is reached in the final stage of data analysis by eliminating critical layers. The essential layers that must be eliminated to reach the centre, i.e., the methods of data collection include the philosophy of research, research paradigm, types of research, research approaches, the research strategy and the data collection techniques; as explained by Saunders et al. (2016).

Figure 23: Research Onion



Source: Saunders et al. (2016, p.124)

6.1 Research Philosophies

The first centre of the research onion is to explain the different research philosophies. In the structure of scientific revolutions – in the 1960s – Thomas Kuhn described philosophical approaches and their existence in social science research. Kuhn (1962) argued that mature scientific disciplines are based on some philosophical assumptions that define the following: what should be studied (relevance of social phenomena), why it should be studied (formulate explanatory hypotheses) and how it should be studied (with what methods). The research philosophy refers to a system of beliefs and assumptions about the development of knowledge when responding to a specific problem in a particular phenomenon or environment while developing new knowledge (Saunders et al., 2016). Competing philosophical approaches in social business sciences contrast with ontological, epistemological and axiological assumptions (Saunders et al., 2016, p. 127). This study addressed each of the philosophical assumptions, explaining in detail how to use them in terms of the current research, and then links them to different interpretative frameworks that

operate at a more specific level of the research process; as indicated in the research onion (Saunders et al., 2016).

6.1.1 Ontological Philosophical Assumption

According to Saunders et al. (2016, p. 147), ontology refers to assumptions about the nature of reality or being and its characteristics. The ontology hypotheses determined how the objects of research were studied, for example, organisations and individuals. Creswell and Creswell (2018) explain this statement in more detail and state that when different researchers conduct qualitative research, they adopt ideas of multiple realities; as do the people studied and the readers of such studies. As part of the study of individuals, qualitative researchers aim to highlight these multiple realities. The Multiple Reality Test includes the use of multiple quotes based on the actual words of different individuals; thus presenting different perspectives of individuals. In addition, in a study by Eriksson and Kovalainen (2016), ontology referred to ideas about the existence and relationships between people, society, organisations and the world at large. This means that reality is based on feelings and experiences that can be different for each person and each organisation, and that can change with time and context. However, the conceptual understandings of reality can be shared. There are two contrasting ontological positions extended: objectivism (realism) and subjectivism (nominalism). According to Bryman (2004), objectivism implies that the social entity in question adheres to an external objective reality independent of the researcher's awareness. Subjectivism is at the opposite extreme, implying that social entities can and should be seen as social constructs based on the perceptions and actions of social actors (Irene, 2014).

In this study, ontological positions must address the issue of subjectivity or objectivity in the adoption of e-commerce by SMEs. The subjective view of the reality of the adoption and use of e-commerce is the position taken in this study. Therefore, this subjective opinion proposes that e-commerce as a phenomenon of adoption and use in participating SMEs is affected by the various TOE contextual factors, and by extensive individual contextual factors. These factors are themselves derived from interactions based on perceptions and actions of users (surveyed participants) as part of an SME's business processes. The interactions of human beings (participants) have with different ICT units and the use of e-commerce applications, as well as the meanings and symbols they derive from the interactions of ICT and e-commerce as an individual or group, will also be highlighted at the ontological level.

6.1.2 Epistemological Philosophical Assumption

While ontology refers to the nature of knowledge and reality, the assumptions of epistemology refer to knowledge; constituting acceptable, valid and legitimate knowledge, and how this knowledge can be communicated to others (Burrell & Morgan, 1979). While ontology may at first seem somewhat abstract, the relevance of epistemology is more prominent. The multidisciplinary context of business and management means that different types of knowledge – from digital data to textual and visual data, facts, interpretations, narratives or stories – can be considered to be legitimate (Saunders et al., 2016).

More recently, Creswell and Creswell (2018) have better described the epistemological assumption, stating that with this epistemological assumption, the qualitative study allows different researchers to get as close as possible to the participants from the organisations. In practice, qualitative researchers lead their studies in the "field" where participants live and work. If the researcher stays in the field or tries to get more information about participants, it is easier to get to know them and subsequently get new ideas and information from participants about the phenomenon under study.

In summary, researchers attempt to minimise distance or physical separation (Guba & Lincoln, 1988, p. 94) between themselves and the participants. Studying the experiences of these participants can only be captured by listening to what they have to say because they have gone through this process (Kreiner, Hollensbe, & Sheep, 2009). Hence, knowledge viewed in this light it is seen by epistemological purists as a subscription to the humanistic sciences model "interpretivism" – a subjective stance. The other extreme position which views knowledge as objective and tangible, aligns to the methods of natural science and it is associated with an epistemological position known as "positivism" (Irene, 2014). Objectivists seek to discover the truth about the social world through measurable and observable facts, from which law-like generalisations can be extracted about universal social reality. In contrast, subjectivists believe that reality is constructed through social interaction, in which social actors create partially shared meanings and realities (Saunders et al., 2016). In other words, taking an extreme subscription to either a subjective/objective ontology or an interpretivism/positivism epistemology, there emerges a pure adherence to the qualitative/quantitative research respectively (Irene, 2014).

In this study, the researcher relied on quotes and testimonials from SME owner-managers and employees. This involved collaboration, spending time in the field with other managerial participants and becoming an "insider" to fully understand the social process that takes place in a particular SME for the adoption of e-commerce. This was undertaken as part of the objective to examine various factors facilitating the adoption of e-commerce in SMEs in

Pakistan. Based on the epistemological philosophy, the researcher analysed in more detail the current overall situation of the chosen organisations, including historical, geographical and socio-cultural contexts. The aim being to understand what is happening in their technological environment and to see how their realities are lived. Therefore, in this study, the researcher interacted with the organisations through both formal and non-formal ways. Thus, an understanding of the phenomenon is constructed, and after choosing an appropriate philosophy, the researcher was interested in opinions and narrations that could help explain the different social realities of participants in organisations.

6.1.3 Axiological Philosophical Assumption

According to Saunders (2016, p. 128), axiology refers to the role of values and ethics in the research process; essentially how researchers treat their own values and those of the research participants. All researchers contribute values to a study, but qualitative researchers disclose their values in a study. It is the axiological assumption that characterises qualitative research. Similarly, Creswell (2012) stated that in a qualitative study, researchers admit the nature of the value of the study and actively declare its values and biases, as well as the nature of the value of the information collected in the field. In a more recent study, Creswell and Creswell (2018) added that researchers “position themselves” in a study. In an interpretive biography, for example, the presence of the researcher is evident in the text, and the author admits that the stories expressed represent an interpretation and presentation of the author as well as the subject of the study. As a result, the researchers' worldview influenced the types of questions asked. This is not confined to the collection of data since during the analysis of results, the extrapolation of topics is also influenced by the values, personal experiences and worldviews of the researchers who are not the case in this type of study. At the same time, the values, experiences and worldviews of the participants interact with those of the researchers to deepen the analysis (Kreiner et al., 2009).

In this study, the researcher did not intend to "position" himself during the data collection phases. The intention was only to spend as much time as required in the SMEs and to try to obtain more truthful information about the phenomena in a real context; with the experiences of different participants of organisations at different levels without any influence and to declare their consequences, values and their biases when collecting data. Therefore, the axiological hypothesis as a research philosophy is not suitable for this type of study. The three sets of philosophical assumptions discussed above have a direct consequence of the fourth set of methodological assumption (Creswell & Creswell, 2018; Neuman & Robson, 2009), as discussed next.

6.1.4 Methodological Philosophical Assumption

The methodology refers to the principles of the organisation, which provide the procedure to guide the research process and research design (Eriksson & Kovalainen, 2016). Sometimes the methodology is called the philosophy of methods. The central point of the methodology is to describe how a given problem can be studied. Buckley and Chiang (1976) defined the research methodology as a strategy or design of architectural research in which the researcher draws an approach to find or solve problems. Silverman (2013) also pointed out that methodologies could be broadly and schematically defined (e.g., quantitative and qualitative methodologies), or narrowly and precisely (e.g., substantive theory, case studies and ethnography), and that methods were often divided into methods of data collection (e.g. interviews and observations). Crotty's 1998 study (cited in Noor, 2008) confirms that the methodology is a global research strategy that determines the choice of researchers and the use of specific methods linking them to the expected results; but the choice of the methodology of research is based on the type and characteristics of the search problem. In addition, Creswell & Creswell (2018) explained in detail the methodological hypothesis and stated that qualitative research procedures – or their methodology – are characterised as inductive, emerging and shaped by the researcher's experience in collecting and analysing data.

In this study, the researcher investigated different methods and methodological techniques, and then considered the most appropriate methodology for designing the research and gathering evidence during field visits to explore various factors in the adoption of e-commerce in Pakistani SMEs. According to Kreiner et al. (2009), the use of a qualitative case study plan and in-depth face-to-face interviews with open-ended questions allows researchers to understand better what these participants have experienced, something the researcher in this study supports. This study also confirms Creswell & Creswell's (2018) statement that the logic followed by the qualitative researcher is inductive at first, rather than being entirely transmitted by the researcher's theory or perspective. Sometimes research questions changed in the middle of the study to better answer the types of research questions needed to understand the research problem. In response, the pre-study data collection strategy should be modified to accompany new questions (Creswell & Creswell, 2018). By analysing the data, the researcher followed a data analysis trajectory to develop an increasingly detailed knowledge of the subject (e-commerce adoption factors) under study. In addition, the researcher worked with particulars (details) before generalisations; detailing the background of the study and the revised questions from the field experiments and the pilot study.

The next research layer identifies two research paradigms that frame this research study, and these are described in the next section.

6.2 Research Paradigms

The historian of science Thomas Kuhn (1970, p. 75) essentially originated the term "paradigm" in the sense that it has become common and widely used in the social sciences and various research studies. Kuhn referred to all the practices that define a scientific discipline for a given period. In this research, the paradigm as a term moves away from Kuhn's original remarks and can be defined as a worldview or belief system or set of shared beliefs guiding a researcher in his work, that informs the meanings or interpretation of research data (Guba & Lincoln, 1994; Kivunja & Kuyini, 2017). More recently, authors such as Lincoln, Lynham, and Guba (2011) and Saunders et al. (2016) have stated that a research paradigm is fundamentally linked to three concepts: ontology and epistemology (Crotty, 1998, cited in Noor, 2008), and methodology (Neuman & Robson, 2009), as previously discussed.

In each concept, there are two main opposing positions called research paradigms. Researchers have proposed a large number of research paradigms, but those such as Creswell and Creswell (2018), Denzin and Lincoln (2018), Neuman and Robson (2009) and Saunders et al. (2016), suggest that they can all be grouped together into three main taxonomies; namely interpretivism, positivism and critical paradigms. However, as discussed earlier in this chapter, this study adopted epistemology as an appropriate philosophy. Therefore, the research paradigms in the following section are based on epistemological philosophy and include *positivism* (reality is external, and there is objectivity and truth) and *interpretivism* (the world is subjective without permanent truth) (Creswell & Creswell, 2018, p. 6). Denzin and Lincoln (2018) indicated that answering questions about epistemological subjective elements provides a framework for qualitative interpretation that guides the entire research process; including strategies, methods, and analysis.

6.2.1 Positivism Paradigm

The positivist paradigm of the exploration of social reality is based on the philosophical ideas of the French philosopher August Comte (1798–1857) who argued that observation and reason are the best ways to understand human behaviour. According to Comte, true knowledge is based on the experience of the senses and can be obtained through observation and experimentation. This view of the world is sometimes called positivist or post-positivist research, empirical science and post-positivism. Recently, Creswell &

Creswell (2018) have argued that knowledge developed in a post-positivist perspective is based on careful observation and measurement of the objective reality that exists "elsewhere" in the world. Thus, developing statistical measures of observations and studying the behaviour of individuals becomes essential for a post-positivist. According to Neuman (2003), positivism views the social sciences as an organised method for combining deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict patterns of human behaviour. Thus, in the scientific method – the accepted approach to post-positivist research – a researcher begins with a theory, collects data that corroborates or refutes the theory, and then performs the necessary revisions and tests (Creswell & Creswell, 2018). At the methodological level, post-positivist researchers often prefer quantitative methods to collect data (Saunders et al., 2016); such as large social samples, structured questionnaires and official statistics because of their excellent reliability and representativeness (Thomas, 2010).

Similarly, Antwi and Hamza (2015) stated that post-positivist researchers focused on explaining behaviour using measurable data collected via highly standardised tools, such as questionnaires and psychological tests with precise written questions. Therefore, the post-positivist paradigm is not appropriate for this qualitative study because the research questions in this study provide real information about SMEs and what is happening in the business environment of organisations. The research questions also explain the role of owner-managers in that they are the decision-makers of SMEs and have full power to adopt (or not) e-commerce in the business process. In a study by Orlikowski and Baroudi (1991), they suggested that post-positivist studies are based on the existence of a priori fixed relations in the phenomena and are generally studied with narrow structure instrumentation. These studies are mainly used to test the theory and improve the predictive understanding of phenomena. This study did not use structured instruments, highly standardised tools, or psychological tests to study the phenomenon and test the theory. An open questionnaire as an instrument was used during the interview phases (see Appendix C), and the research questions were designed to identify the unknown adoption factors of e-commerce through face-to-face and telephone interviews that explain contextual factors of different SMEs to build the theory within the data.

6.2.2 Interpretivism Paradigm

In an interpretivism perspective, the theoretical framework of much of the qualitative research considers the world as socially constructed: interpreted and experienced by individuals in their interactions with each other and with broader social systems (Antwi &

Hamza, 2015; Bogdan & Biklen, 1992; Guba & Lincoln, 1985; Maxwell, 2006; Merriam, 1988; Saunders et al., 2016). According to this paradigm, the nature of the survey is interpretative and naturalistic, and the surveys aim to understand a particular phenomenon – and not to generalise to a population (Farzanfar, 2005). Researchers of the interpretative paradigm are naturalistic and social constructivist, believing that individuals seek to understand the world in which they live and work. As part of this, individuals develop subjective meanings of their experiences; meanings directed to specific goals or things. Interpretivists aim to rely as much on the views of participants as on the situation under consideration (Creswell & Creswell, 2018). In this study, the researcher acted as an interpretivist and spent a lot of time with owner-managers and other SME employees to understand the phenomenon of the study.

Walsham (1993) also argued that in the interpretative paradigm, there are no "correct" or "incorrect" theories. Instead, they should be judged on their "interest" to social constructivists as well as those involved in the same areas. Interpretive research does not pre-define dependent and independent variables but focuses on the complexity of creating human meaning as the situation evolves (Kaplan & Maxwell, 1994). As such, this interpretive approach aims to explain the subjective reasons and meanings behind social action. The interest of interpretivists is not to generate a new theory, but to judge or evaluate and refine the theories of interpretation (Antwi & Hamza, 2015). Further, Bhattacharjee (2012) has argued that the interpretive paradigm is the most productive way to study social order and is obtained through a subjective interpretation of the participants involved; for example, by interviewing different participants and reconciling the differences between their responses.

Saunders et al. (2016) further argued that by socially interpreting data collection techniques, interpretivists most often use small samples and in-depth qualitative surveys. In discussing interpretivism, both Creswell and Creswell (2018) and Crotty (1998) determined that human beings construct meanings as they engage in the world they interpret. Interpretivists therefore tend to use open-ended questions to allow participants to share their points of view by collecting personal information in the field. The process of qualitative interpretative research is primarily inductive; thus, researchers generate meaning from the data collected in the field. Without the need to verify or validate a hypothesis – and to try to understand the adoption factors that influence the adoption of e-commerce – this study is based on an interpretative paradigm.

6.2.2.1 Justification for Choosing the Interpretative Paradigm

According to the interpretative paradigm, it is possible to obtain useful data when interpretivists use their preconceptions to guide the research process, and when the researcher also interacts with human subjects by modifying the perceptions of both parties (Chowdhury, 2014; Walsham, 1995). However, Lin (1998) explained that interpretivist researchers seek not only the presence or absence of a causal link but also the specific way in which it manifests itself and the context in which it occurs. As a result, these researchers may go beyond what has happened and how it has happened (Chowdhury, 2014; Lin, 1998).

The interpretative paradigm is considered the most appropriate for this study because of its potential to generate new understandings of an emerging concept of the social sciences; a concept studied in current research. Because practical knowledge, integrated into the world of human interaction and its meaning, was sought it was always justified and had to be adequately studied according to an interpretative paradigm (Creswell & Creswell, 2018). In addition, the research philosophy adopted for this study is based on the development of knowledge through questions, observations and dialogues in which participants and owner-managers of SMEs shared their real-life experiences during the interview phases.

Denzin and Lincoln (2018) provided another justification for the fact that interpretive research approaches produce a detailed (referred to as “thick”) description of participants' feelings, opinions and experiences, and interprets the meaning of their actions. Concerning the adoption of e-commerce, for example, Thanh & Thanh (2015) showed in their study that the results of interpretive research establish a specific and profound relationship between information and the different communication technologies within SMEs. Studies by Chalhoub-Deville and Deville (2008), and more recently, Rahman (2017), also confirmed that interpretative approaches are better used to greater understand the issues related to the adoption of e-commerce, its associated applications and the availability and use of e-commerce of various ICT devices in SMEs. Therefore, using the preceding discussion and the rationale behind previous studies, the research element of this study was based on the interpretative paradigm; which theoretically advocates the study of participants' experiences based on their value.

The main objective of this study is to determine the real drivers of e-commerce adoption in Pakistan's various SMEs and to analyse the organisational structure issues of SMEs. In order to critically examine the current state of adoption of SMEs, both face-to-face and telephone interviews were conducted, along with other data collection techniques such as analysis of documents, websites and observations. As an interpretivist, the researcher

spent most of his time with owner-managers, and other SME employees gathering their opinions, experiences and statements regarding the adoption of technology and various innovations such as e-commerce. Using multiple resources, the data collected helped the researcher to explain a particular situation and the current overall position of the SMEs that participated in this e-commerce adoption study, as well as support from local and government institutions for the development of e-commerce and successful adoption of technological applications. This study focuses on factors that motivate or demotivate SMEs in Pakistan i.e., the barriers to adoption that affect the success of e-commerce, and how these SMEs benefit from e-commerce as an innovation.

After selecting the appropriate research philosophies and the research paradigm to design this study, the next layer of the research onion is made up of the types of research and is presented in the next section.

6.3 Research Types

According to Creswell and Creswell (2018), Saunders et al. (2016, p. 140), and Yin (2018, p. 10), five types of research studies can be designed to achieve the research objective: descriptive, explanatory, exploratory, deductive and inductive. These will each now be discussed.

6.3.1 Descriptive Studies

Descriptive studies aim to obtain an accurate profile of events, people or situations (Saunders et al., 2016). Such studies usually have one or more guiding research questions but are not motivated by structured research hypotheses. As this type of research often aims to describe the characteristics of the population from the data collected from the samples, it is often necessary to use a probabilistic sampling technique such as simple random sampling. Descriptive research data can be qualitative or quantitative; however, quantitative presentations are limited to frequency distributions and statistics, such as averages (Sue & Ritter, 2012) and are therefore not appropriate for this qualitative study.

The purpose of this study is not to describe the characteristics of the participants during the data collection phases, but to develop an understanding between owner-managers and other SME participants through a technique of purposive sampling. This allows answering of the relevant questions – mainly “what” and “why” – related to the adoption factors of e-commerce in Pakistani SMEs. Of note is that Saunders et al. (2016) assumed that descriptive studies focus on descriptive research questions – “how, when and who” – and

that it is necessary to have a clear picture of the phenomenon. In light of this, it was not considered appropriate for this study.

6.3.2 Explanatory Studies

Explanatory research focuses on the study of a situation or problem in order to explain the relationship between the variables. Sue and Ritter (2012) argue that probabilistic sampling can be a requirement of explanatory research because the goal is often to generalise the results to the population in which the sample is selected. The data is quantitative and almost always requires the use of a statistical test to establish the validity of the relationships. The objective of this qualitative study is not to generalise the results, but to evaluate the phenomena from a new angle in order to understand and examine the phenomena on the ground; according to the qualitative data from the various interactions and experiences of SMEs' top leaders and other employees. Therefore, the type of explanatory research was also not considered to be appropriate for this study.

6.3.3 Exploratory Studies

An exploratory study is a valuable way of knowing what is happening; the search for new ideas poses open questions and evaluates phenomena in a new perspective that is poorly understood and less studied (Robson, 2002, p. 59; Saunders et al., 2016). This usually means that little has been written about the subject or the study population and that the researcher seeks to listen to participants and develop an understanding based on what is heard (Creswell & Creswell, 2018). Exploratory studies are useful if a researcher wants to clarify the understanding of a problem as if he or she was unsure of the exact nature of the problem. This exploration can begin with a literature search, a group discussion or case studies. If an investigation is conducted for exploratory purposes, no attempt is made to examine a random sample of a population; researchers conducting exploratory research typically look for people with knowledge of a subject or process. Further, exploratory research usually seeks to create hypotheses instead of testing them and data from exploratory studies tend to be qualitative (Sue & Ritter, 2012). Thus, it was considered that exploratory study was most appropriate for this qualitative study. The reason for choosing exploratory research for this study is that exploratory studies focus primarily on the "what" (as a case in this study) and that this type of question is a justifiable justification for conducting an exploratory study (Yin, 2018).

This study seeks to identify various factors related to the TOE model that hinder the successful integration of innovative technologies such as e-commerce in SMEs in Pakistan. As a result, a qualitative research approach based on exploratory case studies was adopted

(Yin, 2018), as it allowed the researcher to understand and discuss e-commerce adoption factors in the field, with the help of qualitative data generated from owner-manager interactions with other employees. Although it is known that the phenomenon of e-commerce studied has already been examined in both developing and developed economies, this study has examined it in a different context, that of a Southeast Asian developing economy, Pakistan, in order to fill the gap and bring new knowledge through a different perception. As established in the literature review, several studies of SMEs in developing and developed economies have already been conducted in various sectors. This research focused on SMEs in four different sectors (manufacturing, hospitality, tourism, and ICT hardware) located in three financial cities (Karachi, Lahore and Islamabad) in Pakistan, to explore the drivers of e-commerce adoption by an extended TOE model and a different methodology. Therefore, an exploratory approach based on case studies as a research plan (Yin, 2018) was the most appropriate for this study.

6.3.4 Deductive and Inductive Studies

Some researchers begin their research with a theory – often developed from reading the scientific literature – and then design a research strategy to test that theory; this is a deductive approach. Conversely, when researchers begin their research by collecting data to explore phenomena, and then generating and constructing a theory (often in the form of a conceptual framework or a model), then we speak of this as an inductive approach (Saunders et al., 2016). Yin (2018) argued that when researchers use existing theory to formulate research questions and objectives, they can also use the theoretical propositions that helped them to design a framework to help the organisation and analyse the data. Bryman (2015) confirmed that in the deductive approach, the researcher develops a hypothesis and a strategy to test the hypothesis of a question.

The alternative to the deductive approach is to start collecting data and then to explore the themes, categories or patterns that follow (e.g., Glaser & Strauss, 1967; Schatzman & Strauss, 1973; Strauss & Corbin, 2008; Yin, 2003). According to Creswell and Creswell (2018, p. 63), this is an inductive construction process, from data to major themes, to a generalised model or theory. Saunders et al. (2016) also argued that research using an inductive approach would likely be particularly concerned about the context in which such events occur. Therefore, in the study of a small sample of subjects, it may be more appropriate than the deductive method. Inductive researchers in this tradition are more likely to work with qualitative data and to use a variety of qualitative methods to collect this data to establish different views of the phenomenon (Easterby-Smith, Thorpe, & Jackson, 2008).

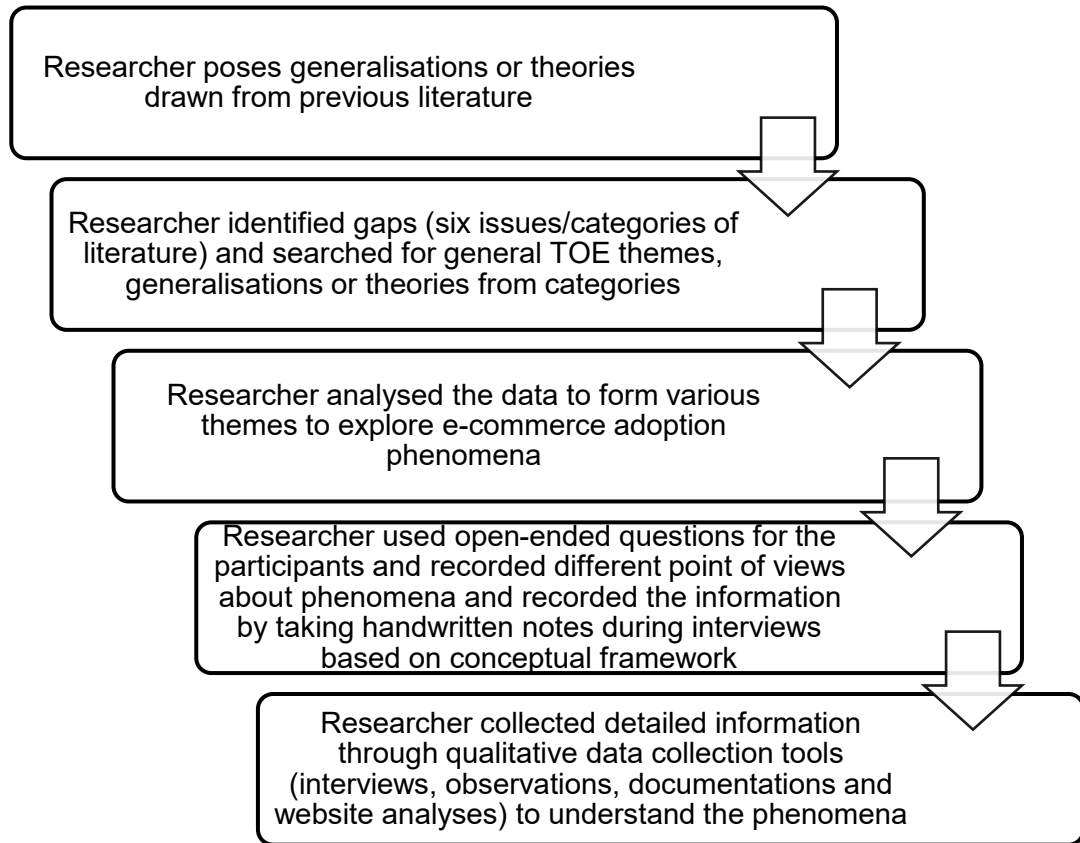
Therefore, in this study the rationale of the qualitative researcher was inductive because its overall purpose was to reveal the hidden factors in relation to the adoption of e-commerce in eight Pakistani SMEs. Saunders et al. (2016) found that many varieties of qualitative research began with an inductive approach, in which a naturalistic and emerging research plan was used to develop a richer theoretical perspective already available in the literature. In this study, factors related to the adoption of e-commerce were not well defined among SMEs in many developing economies; particularly the economy of South-East Asia, and specifically Pakistan as a developing country. Therefore, the most appropriate approach was considered to be an inductive one. The logic underlying the inductive approach of this study is illustrated in Figure 24.

Qualitative inductive data were collected after reviewing literature and past experiences and six categories of literature were identified: general characteristics and status of SMEs, use of ICT infrastructure, role of owner-managers, factors affecting the adoption of e-commerce, role of government, and finally, the support of local business institutes. From this, the extended conceptual model was designed. After reviewing the literature and based on a category of conceptual framework, various themes of the TOE (extended technological, organisational, environmental and individual factors) were developed within six categories of literature in the form of general theories or generalisations, which were then compared to personal experiences or the existing literature on e-commerce adoption factors in developing and developed economies.

Based on six literature categories, the data was then collected through face-to-face and telephone interviews, direct observations, and background information provided by the owner-managers and other management/employees, as well as a review of SME web pages, as appropriate. The face-to-face interviews lasted between 45 and 90 minutes with all interviews being conducted using an open and guided questionnaire as a research tool to understand the level of e-commerce adoption of each SME (and their business objectives). The questions allowed the researcher to record participants' responses and their different perspectives in handwritten form and to discuss issues such as the knowledge of owner-managers and employees about e-commerce adoption, their personal beliefs about using the technological systems, and a detailed description of their relationships and the involvement of the company. Handwritten notes were then used for the final analysis and to provide answers to the relevant research questions.

The next layer in the research onion is to explain the different research approaches, as covered in the next section of this thesis.

Figure 24: Researcher Logic Behind an Inductive Approach



Source: Author

6.4 Research Methodological Approaches

Creswell and Creswell (2018) assumed that research approaches are the research designs and procedures that cover all steps from general assumptions to specific methods of data collection, analysis and interpretation. Critically, the choice of research method depends on the nature of the research problem or problem being addressed, the personal experiences of the researcher and the target audience. Thus, in this study, two methodological approaches: quantitative and qualitative represent a research perspective by presenting information in sequence, from broad constructions of the research to the narrow procedures of methods (Creswell & Creswell, 2018).

6.4.1 Quantitative Research Approach

Quantitative research is an approach to test scientific theories by examining the relationship between variables (Creswell & Creswell, 2018). Quantitative is often used as a synonym for any data collection technique (such as a questionnaire) or any data analysis procedure (such as graphs or statistics) that generates or uses numerical data (Saunders et al., 2016).

Further, Bryman (2015, p. 35) defined quantitative research as a secondary research approach focused on quantification in data collection and analysis. The quantitative research method seeks to examine responses to questions by "how much" and "to what extent" (Rasinger, 2013). In other words, the method places a strong emphasis on measuring variables that already exist in the social world.

In addition, Creswell (2014) confirmed that quantitative research relates to a paradigm of positivism and that qualitative research supports a paradigm of social science interpretation. To answer the main research questions, this study uses the latter; an interpretative paradigm. Looking in detail at the aspects of both quantitative and qualitative research, Payne and Payne (2004, p. 180) stated that both quantitative (using deductive logic) and qualitative (inductive logic) approaches seek models in human life by separating the social world into empirical components called variables. These variables can be represented in numerical form as frequencies or rates whose associations can be explored according to statistical schemes (surveys and experiments) (Creswell & Creswell, 2018).

6.4.2 Qualitative Research Approach

On the other hand, qualitative research is an approach to exploring and understanding the meaning that individuals or groups attribute to a social or human problem (Creswell & Creswell, 2018). Qualitative is often used as a synonym for any data collection technique (such as an interview) or analysis procedure (such as categorisation of data) that generates or uses non-numerical data (Saunders et al., 2016). A qualitative research approach refers to any research that produces primary results that are not obtained through statistical procedures or other means of quantification. Rahman (2017) stated in his study that qualitative research could refer to primary research on the experiences, behaviours, emotions and feelings of individuals, as well as on the functioning of organisations, social movements, cultural phenomena and interactions. This means that qualitative research is not statistical and incorporates multiple realities.

Miles, Huberman, and Saldana (2014) stated that qualitative research is conducted through intensive long-term contact with participants in a naturalistic environment to investigate the daily and exceptional lives of individuals, groups and societies on the ground; from observations, interviews and documents. Creswell & Creswell (2018) also summarised several ways of conducting qualitative studies, including narrative and phenomenological plans. However, both Stake (1995) and, more recently, Yin (2018) have suggested that qualitative processes are involved in the design of the case studies. Flick (2014, p. 542) also observed that qualitative research seeks to analyse the subjective importance or social production of problems, events or practices by collecting non-standard primary data and

analysing texts and images instead of numbers and statistics. Thus, it emphasises how people make sense of something in the world. Similarly, Denzin and Lincoln (2018) found that qualitative research was associated with an interpretative philosophy, in which researchers had to understand the subjective and socially constructed meanings of the phenomena studied.

As mentioned earlier, there are very few subjective studies on the adoption of e-commerce in the context of Pakistan's SMEs, and most of them are quantitative in nature and use a different methodology (e.g., Hyder & Lussier, 2016; Seyal et al., 2004). It has also been established that there is a lack of primary and deep qualitative understanding of e-commerce in the literature that needs to be investigated. Therefore, a qualitative research approach with the case study as the research plan was chosen for this study because, primary data were collected which provide answers to questions requiring in-depth clarification (Easterby-Smith et al., 2008).

6.4.2.1 The Justification for Choosing the Qualitative Research Approach

A qualitative approach was chosen as appropriate for this study, and is based on the work of Denzin and Lincoln (1994, 2000) and Van Maanen (1998). Denzin and Lincoln (2000, p. 8) consider qualitative research to be a multi-method research that uses a realistic and interpretative approach to a subject and highlights the qualities of the entities (i.e., processes and meanings occur naturally). In contrast, Miles et al. (2014) argued that the qualitative approach focuses on people's experiences, that it is fundamentally well adapted to the localisation of the meanings people attribute to the experiences, events, processes and structures of their lives as well as the connection of these meanings with the social world around them.

Another characteristic of the qualitative approach is its richness and holism, with great potential for revealing complexity; these data provide vivid, "thick descriptions" (Geertz, 1973) embedded in a real context and with a ring of truth that has a significant impact on the reader (Miles et al., 2014). Leedy and Ormrod (2005) also justified the use of the qualitative research approach under the following conditions:

- When there is very little primary information available on the subject.
- When the researcher's variables are unclear and unknown, and
- When a consistent theoretical basis is lacking in any sense.

As such, qualitative research does not claim to "prove" a hypothesis, but this method has a profound tendency to describe the analysis and to interpret the constructive aspects of the social world (McLeod, 2001, p. 133). Therefore, in this qualitative study, the researcher

explored the experiences and perspectives of the participants and identified various factors leading to the success or failure of e-commerce within their organisations. Factors, such as the technological, organisational, environmental and extended individual – corresponding to the themes of the framework of the TOE (Tornatzky & Fleischer, 1990) – were used in the analysis. Therefore, a qualitative exploratory case study in Pakistan was needed to identify hidden barriers that owner-managers and SME managers might take into account when planning the adoption and implementation of technologies related to e-commerce in their business model. This was achieved using qualitative methods of primary data collection based on face-to-face and telephone interviews, observations, documentation, and a complete website analysis, which captures different perceptions and judgments of the participants.

The next layer of the research onion in this exploratory qualitative interpretative study is to examine the appropriate research strategy, to provide information on the different factors relating to e-commerce adoption by SMEs.

6.5 Research Strategy

Authors such as Creswell and Creswell (2018), Kumar (2014), Saunders et al. (2016) and Yin (2018) and outlined different research strategies for qualitative interpretive studies and provided ways to collect data and design the study. According to these authors, different research strategies can be used (design and creation, experimental research, survey research, field theory, ethnography, action research, archival information and case studies) in the qualitative study to initially guide the design, collection and analysis of the data and to guide in the search for hidden phenomena.

The methodology of this study is based on an interpretive paradigm, in order to understand the perceptions and actions of SMEs regarding the adoption of e-commerce. As part of this a qualitative search of inductive types and approaches was selected, as indicated in previous sections. Yin (2018) found that case studies are best used in social science research that explores the hidden meaning and cause of phenomena being studied. The following section explains the process of choosing an appropriate search strategy for the design of this study, to collect data from many sources for a particular case study.

6.5.1 Case Study Research Strategy

According to Yin (2018, p. 15), a case study is an empirical method that studies a deep contemporary phenomenon (the case) and its real context; especially when the boundaries between phenomena and context are not visible. In addition, Creswell and Creswell (2018)

argued that the case studies are a survey model used in many areas – particularly evaluation – in which the researcher develops an in-depth analysis of a case; often a programme, an event, activity, process or one or more individuals. According to Eisenhardt and Graebner (2007) and Saunders et al. (2016), the case study strategy will be relevant if the researcher wishes to gain a thorough understanding of the research context and the processes being implemented.,

The case study strategy also has considerable capacity to generate answers to the "why" questions, as well as the "what" and "how" questions. For this reason, the case study strategy is used more frequently in exploratory research (Saunders et al., 2016). The case study is the opposite of the experimental strategy – in which research is conducted in a highly controlled context. The case study also differs from the survey strategy in which, although research is conducted in context, the ability to explore and understand this context is limited by the number of variables for which data can be collected. (Saunders, Lewis, & Thornhill, 2009). In addition, Kumar (2014) stated that the design of the case study was based on the assumption that the case studied was typical (in relation to the type), case and that a single case could therefore provide an overview of the events and various situations.

Case studies have been widely used in the social sciences and have proved particularly useful in practical areas such as education, administration, public administration and social work. However, despite this long history and widespread use, Yin (2018) confirmed that case study research has received little attention among the various methodologies of social science research. For this reason, in this study the social-constructivist researcher has adopted a case study as a research strategy aimed at uncovering the hidden factors of e-commerce adoption in SMEs in Pakistan.

6.5.1.2 Justification for Choosing the Case Study Research Strategy

Welch, Piekkari, Plakoyiannaki, and Paavilainen-Mantymäki (2011) considered that a case study methodology referred to an interpretative paradigm. Further, Stake (2013) argued that case studies are particularly suited to naturalistic generalisations based on the experiential transformation of unspoken knowledge into clear knowledge. In any case, case studies are particularly suitable for the in-depth description of complex social phenomena, with the depth of the analysis being one of the main features of the case study method (Baškarada, 2014; Gerring, 2004). Therefore, a case study can contribute to knowledge by linking the results of the theory to the generalisable theory (Renken & Moswetsi, 2006).

The purpose of this study is to explore the factors that influence the adoption of e-commerce in SMEs and to provide answers to research questions through the conceptual framework for in-depth analysis. The researcher in this study has demonstrated the need for a research strategy to explore the problem and answer qualitative research questions “How” and “Why”. As a result, this research followed a case study strategy after choosing an interpretative paradigm to uncover the hidden factors behind the adoption of e-commerce by SMEs, mainly in the context of a developing economy.

The use of case studies has confirmed the relevance of this study because case studies are considered more convincing for SME owner-managers than theoretical discussions (Levy & Powell, 2005). Studies without a qualitative component cannot be used as a basis for recommending actions to owner-managers nor to inform policy (Merriam, 2009; Rozyn, 2007); a contribution that research on the uses of emerging technologies in SMEs often seeks to make (Ponelis, 2015). Yin (2018) further confirmed that qualitative research in the form of a case study should be considered when the phenomena studied meet the requirements of weak and highly complex technical knowledge. This has been found to be the case in this study.

The development of SMEs that exploit e-commerce as the main information and communication tool is an innovation phenomenon in developing economies such as Pakistan. It is therefore not surprising that most of the studies published previously are explanatory and relate to different fields and industries. The case study research strategy is the right choice to study factors related to e-commerce research because, since the information system is essential to e-commerce, it is a fundamental research problem. Therefore, the case study as a research strategy is the most appropriate for this type of e-commerce study. Clarke (2000) argued that cultural differences in the adoption of e-commerce between economies are important because diversity has a significant impact on e-commerce applications. As such, cultural differences sometimes create a significant challenge for the adoption of different theories, models and frameworks both for developed economies, and subsequently for developing economies such as Pakistan. In turn, this raises many questions about the phenomena of the subject and should be explored as part of the research strategy.

6.5.2 Single or Multiple Case Studies

Case studies can be single or multiple to understand the phenomena studied (Yin, 2018). According to Mesec (1998, p. 384), in multiple case studies, each case is studied as if it were a single study and then compared to the other cases. The analysis of each subsequent case is based on the knowledge drawn from the examination of previous cases. Yin (2018)

added that a single case is often used when it represents a critical case or an extreme or unique case. Conversely, a single case can be selected because it is typical or offers the researcher the opportunity to observe and analyse a phenomenon that few people have considered. Inevitably, an essential aspect of using a single case is to define the actual case.

A case study strategy can also integrate several cases and their use is justified by the need to establish whether the conclusions of the first case apply to other cases – and consequently, by the need to generalise from these results. According to the literature, case studies can be linked to one or more cases and the problem of an isolated case is the limitation of the biases of generalisation and information processing (Eisenhardt, 1989). Yin (2009, p.162) strongly recommends that junior researchers start with a "simple and straightforward case study" because of the complexity of managing and analysing large volumes of data. Although there is no ideal number of cases, Ponelis' (2015) study outlined several recommendations put forward by other researchers. For example, Eisenhardt (1989, p. 554) estimates that between four and ten cases work well; Crabtree and Miller (1992) recommend a sample of six to eight for a homogeneous sample; and Curran and Blackburn (2001) suggest case studies numbers in small business research are often less than 10.

As a result, eight cases were adopted in this study, based on SMEs in the manufacturing, hospitality, tourism, and ICT hardware sectors in Pakistan (see Table 10). This was to improve external validity, present convincing evidence and allow comparisons between the cases. According to Saunders et al. (2016), multiple case studies also help to strengthen the research position. This statement is supported by others such as Herriott and Firestone (1983) and Yin (2018), who stated that evidence from multiple cases is often considered more convincing. Thus, the multiple case study in general is considered to be more robust.

6.5.3 Unit of Analysis

The unit of analysis is the SME (or part of it) as an entity to be analysed, and can also be an individual with experience and interest in the study subject and area (e-commerce or ICT), an event such as a decision, a social process, an implementation process (Myers, 2009; Rowley, 2002). As a central decision-maker, the strategic position of the owner-managers serves as a "focal point" around which all commercial activities are centralised, including research and information assimilation (Lybaert, 1998, p.188). As a result, eight multiple cases (SMEs) were selected for this study to improve external validity, present convincing evidence, and assist research. This research focused on a process in an organisation; the use of electronic information for decision-making in an SME by the person

involved; the owner-managers as the lead decision maker as well as other key participants, including managers and employees. Yin (2018) argued that if a study has multiple units of analysis, it is called an embedded case study, which is the case in this study.

Table 10: Characteristics of Participating SMEs (cases)

SME Name	Start Date	Sector Size & City	Total Staff	Interviewee Position	Education Level
1KHIMANUSML	2009	Small manufacturing-Karachi	22	Owner-manager, Finance Officer, Field Marketing Manager	High school certificate, BA and B.com
2ISBTICKSML	2005	Small ticketing and tourism-Islamabad	12	Owner-manager, Co-owner, Accounts Officer	BA, MBA and M.com
3ISBMANUMED	1997	Medium manufacturing-Islamabad	51	Owner-manager, ICT Manager, Marketing Director	MBA, BBA and ICT university certificate
4ISBTRVLSML	2007	Small travelling and tourism-Islamabad	12	Owner-manager, Finance and Admin Officer, Marketing Assistant	High school diploma, BA and B.com
5ISBICTMED	2006	Medium ICT-Islamabad	56	Owner-manager, Finance Manager, Sales and Support Manager	BCS, M.com and BCS
6KHITRVLMED	2002	Medium ticketing and tourism-Karachi	90	Owner-manager, ICT Manager, Finance Manager	Bachelor's in business, MBA-IT and M.com
7LHRHTLSML	2007	Small hospitality-Lahore	21	Owner-manager, Accounts Officer, Admin Officer	High school diploma, B.com and BA
8LHRMANUMED	2003	Medium manufacturing-Lahore	80	Owner-manager, Marketing Manager, Finance Manager	MBA, MSc and ACCA

6.5.4 Selection of the Participants

In qualitative research, researchers do not have a predetermined sample size but during the data collection phase they must wait to reach a saturation point (Kumar, 2014). Therefore, sampling is the process of selecting a part (a sample) of the largest group (the sampled population) as the basis for estimating or predicting the prevalence of unknown information, situations, or outcomes for the larger group. There are several sampling strategies in quantitative research and can be categorised as follows:

- Random/probability sampling design,
- Non-random/non-probability sampling design, and
- Mixed sampling design.

However, qualitative research sampling can also be done by applying non-probability sampling plans:

- Purposive/judgmental sampling,
- Expert sampling,
- Accidental sampling, and
- Snowball sampling.

The size of the sample – which may or may not be amended before the data collection – depends on the resources and time available as well as the objectives of the study. It is often determined based on theoretical saturation (the point in the data collection when the new data no longer provides additional information to the research questions). Therefore, purposive sampling can be very useful, and it was used in both the data collection and data analysis elements of this study.

Etikan, Musa, and Alkassim (2016) supported the use of purposive sampling; arguing that purposive or judgemental sampling is one of the most common sampling strategies in a qualitative study, to identify and select information-rich cases for the most effective use of limited resources. Yin (2014) also explained the concept of purposive sampling by saying that the main consideration is the investigator's criterion within the study about who can provide the best information to achieve its aims. Therefore, in this study, the researcher used a purposive sampling technique as a means to ask the owner-managers and other relevant SME employees to participate in the study (see Appendix D for the request to participate and Appendix E for the participant information sheet). The choice of participant was based on their experiences in the field of e-commerce and the implementation and use of ICT infrastructural units (as shown in Table 10).

The purpose of this study was not to generalise the results, but rather to explain the natural development of e-commerce in SMEs. In particular: how and why SMEs use the internet and e-commerce, what factors influence the adoption of e-commerce and how the role of local business institutes such as SMEDA can improve the overall situation of SMEs with government support. Therefore, for this study, a total of eight cases were selected (as listed in Table 10).

At the initial level, a list of 1,050 SMEs (with contact details) was provided via email by SMEDA. To validate the existence of the organisations and obtain permission to participate in the study, telephone calls were made to 16 SMEs identified as meeting the criteria for this study, using the contact details provided. Subsequently, a request for participation was also sought via a telephone call to the owner-managers – as the level at which permission was required to be sought. This included a brief description of the purpose of the study and the reasons for the requested participation. It also involved requesting permission to talk to other relevant members of staff as necessary. This request generated a 50% response rate and therefore led to the final sample of eight organisations. The offices of the identified SMEs were located both within Pakistani cities such as Karachi, Lahore, Islamabad, Rawalpindi and Faisalabad, and internationally such as the United Arab Emirates and Italy.

For face-to-face interviews, the researcher made an appointment by telephone to visit the organisations and conducted personal interviews with owner-managers and other employees who were familiar with e-commerce and ICT related applications. The researcher also looked for organisations that have actively used some of the e-commerce activities online with the implementation of the latest ICT resources and units. An additional criteria in the selection process was for the organisations to have (or have had) a website so the researcher could get an idea of the content of the site; which is an essential tool for e-commerce transactions in relation to the aims of this study.

While consent was provided over the telephone during the initial request, consent forms were also signed (see Appendix F) before the interviews to provide a written record. In addition, participants were also informed about the duration of the interview, the notes and details of the interviews recorded manually in a diary and the form of written notes for transcription. The total duration of each face-to-face interview was between 45 and 90 minutes and it is interesting to note that a number of owner-managers did not want to commit due to their busy schedules, and this was the prime reason for not wishing to participate. After the face-to-face interviews, it was agreed that if more information was needed, telephone interviews could be conducted to obtain more information. Finally, all participants were informed that they could withdraw from the study at any time during the

data collection phase. It was also explained to all participants that the interview data would be confidential and would only be used for this study and would not be disclosed to any third party.

6.6 Research Time Horizon

As established during the literature review, the researcher decided to spend a lot of time in the field to establish a relationship with the participants. To understand the true meaning of SMEs and e-commerce that SMEs must adopt in their daily business activities, the researcher devoted as much time as possible to the organisations to maintain trust among the participants. Therefore, the researcher applied a longitudinal time horizon for this study.

6.7 Data Collection and Analysis Procedures

The centre of the research onion concerns data collection and analysis procedures. This section provides information on the data collection tools and analysis steps used to obtain the data to answer the research questions and achieve the objectives of this study.

6.7.1 Research Instrument

This study is interpretative, using eight case studies in a qualitative research model. As a qualitative researcher, data was collected by examining documents, observing behaviours, and interviewing participants using an open questionnaire as a research tool. Data recording was done using a case study protocol (Creswell & Creswell, 2018). An open questionnaire – guided by the interview – was used (see Appendix C) to ensure that the key discussion points of the conversation were not excluded. In the case of the questionnaire, Kumar (2014) explained that the respondent wrote the answers in his own words but that in the case of an interview, the interviewer recorded the answers, either in full or in the form of a detailed summary. As noted above, the interview lasted between 45 and 90 minutes; the timescale being dependent on the context and the respondent's ability and willingness to provide information about e-commerce phenomena within their organisation. This included factors and barriers since this was the key information to be gathered to achieve the research objectives of this study.

6.7.2 Questionnaire Design

Kumar (2014) explained the concept of the questionnaire and indicated that a questionnaire is a written list of questions whose answers are recorded by respondents. As a result, respondents read the questions, interpret what is expected and then provide the answers.

The only difference between an interview and a questionnaire is that, in the first case, the interviewer asks the questions, explains them and records the answers while in the second, the answers are recorded by the interviewees themselves. Several drafts of the questionnaire were developed after a review of the literature, to adjust the context of this study.

To ensure the validity of the content, Luarn and Lin (2005) recommended modifying the elements of each concept based on previous research. The final version of the questionnaire contains open-ended questions (see Appendix C). The first part is dedicated to the first research question; the demography of SMEs in terms of size and structure, characteristics and type, and measures the different variables identifying the perceived benefits and the level of adoption. The second section relates to the second research question; questions are based on theoretical concepts, including adoption factors, community barriers within the organisations and the role of owner-managers and other employees in terms of ICT knowledge and innovation awareness; as described in the conceptual framework categories. The final section of the questionnaire is based on the third research question and includes the role of the local business institutes, government support and strategies for the adoption of e-commerce, and the establishment of the latest ICT infrastructure units in supporting e-commerce within the eight SMEs.

In this study, the questionnaire was sent to participants in advance to become familiar with the subject and explain the general meaning of the research before the interview. As Kumar (2014) has confirmed, the most common approach for collecting information is to send the questionnaire to respondents by email. In total, six questionnaires were sent by email to participants from three SMEs after obtaining the contact details during the pilot telephone interviews. In conducting a pilot study, the researcher used an open questionnaire to obtain general ideas about the organisation, the general characteristics of SMEs, the availability and quality of the infrastructure within the organisation, and the adoption patterns of e-commerce to improve the validity and reliability of the study. Also, the information was collected using an open questionnaire was recorded manually by the researcher. Before the final face-to-face interviews, a total of 24 questionnaires were provided to participants.

6.7.3 Pilot Study

Kumar (2014) explained that after the construction of the research instrument, whether it is a questionnaire and/or interview, it is imperative to test it before using it for the collection of final data. The preliminary test of a research instrument involves a critical examination of respondents' understanding of each question. A pre-test must therefore be carried out in real field conditions on a group of people or individuals within the research population.

Therefore, with the pilot study, the primary objective was not only to collect the data but also to identify the problems that potential respondents might have in understanding or interpreting a phenomenon. A further objective was to identify whether there have been problems in understanding how a question has been formulated, the meaning it conveys, if different respondents interpret a question differently and if their interpretation is different from that which the researcher was trying to transmit. If there is a problem, it is accepted that a researcher should re-examine the wording to make it more visible and clearer.

The open-ended questionnaire was sent to six participants selected from three SMEs for the telephonic pre-test (KHIMANUSML, LHRHTLSML and ISBICTMED as presented in Table 11). This was designed to qualitatively analyse the opinions of the participants on adoption of e-commerce in their organisations. Participants were encouraged to identify various barriers and issues regarding e-commerce adoption in their SMEs and to evaluate the validity of the questionnaire externally. All industry managers were selected by their previous e-commerce experience in the country's leading organisations and the total duration of the interviews varied from 45 to 60 minutes. The interviews were recorded while taking handwritten notes. According to their answers, the final questionnaire was prepared and administered.

The first pilot telephone interview was conducted with the owner and the ICT manager of the manufacturing organisation (kitchen and vanity production units) KHIMANUSML, based in the financial city of Pakistan, Karachi. It is an organisation with 22 employees which meets the definition criteria of a small business (as outlined in Chapter 2). Both participants have extensive professional experience in SMEs. During the pilot interviews, the researcher had the opportunity to evaluate the importance of the questions asked during the interview. After the interview, the researcher reviewed the answers to ensure that the questions were correctly asked and that sufficient information was obtained during the pilot test. In relation to the adoption of e-commerce in the company, the main barriers identified were the lack of (i) awareness of e-commerce, (ii) technological skills required by managers to work on applications and (iii) e-business knowledge among the organisation's employees.

The second interview was conducted in another provincial city of Pakistan, Lahore, at an organisation called LHRHTLSML (hospitality services), which employs a small business with a total of 22 staff. A telephone interview was conducted with the owner-manager and the account manager to obtain information about the organisation and its e-commerce adoption capacity. As a result of the pilot interview, it was found that the main factors influencing the adoption of e-commerce in the business were (i) energy shortages, (ii) limited financial resources and (iii) lack of managerial attention towards e-commerce.

Table 11: Pilot Test SME Information

Pilot no.	Organisation Name	Year Established	Business area & City	Total Staff	Position of Interviewee	Level of Education
1	KHIMANUSML	2009	Manufacturing-small-Karachi	22	Owner & Finance Officer	High School certificate & B.com
2	LHRHTLSML	2007	Hospitality-small-Lahore	22	Owner & Accounts Officer	High school diploma and B.com
3	ISBICTMED	2006	ICT-medium-Islamabad	56	Owner & Finance Manager	BCS and M.com

The last pilot telephone interview took place in an SME (ISBICTMED) located in the commercial district of the financial capital of Pakistan, Islamabad, which has 56 employees. The main activity of the medium company was to sell ICT units (computers, printers, laptops and digital devices) to the general public and government ministries. The owner and the financial manager were interviewed by telephone to obtain brief information about the adoption of e-commerce and ICT activities within their organisation. During the pilot telephone interview, the researcher identified some useful points that were used in the final data collection process. The questionnaire design was modified after this pilot interview because the finance manager had worked for many small, medium and large organisations and had an in-depth knowledge of e-commerce and the implementation of various ICT units. The results of the pilot study helped the researcher to identify the problems that affect the adoption of e-commerce in ISBICTMED and the main problems identified were i. the lack of government support and ii. the lack of full e-commerce integration of business processes.

The pilot study provided the researcher with excellent feedback on the research questions and, as a result, the validity of the interview questions was improved through the rigorous submissions that were made. In telephone pilot interviews with the various participants, relationships were established enabling the researcher to become familiar with each organisation, which subsequently led to it being easier to enter the organisation for final face-to-face interviews.

6.7.4 Data Collection Tools

Rather than relying on a single data source, qualitative researchers often collect multiple sources of data (triangulation), such as interviews, observations, documents and other sources. These are all open forms of data in which participants share their ideas freely and are not restricted by predetermined scales or instruments (Creswell & Creswell, 2018). Data triangulation refers to the use of various methods and sources of data collection in qualitative research to develop a global understanding of the phenomena (Patton, 1999).

According to Yin (2018, p. 127), one of the main reasons for using multiple sources of evidence in a case study investigation is related to the basic motive for conducting a case study in the first place; to undertake an in-depth study of a phenomenon in its context of the real world. Being both deep and contextual, a context that potentially includes events over some time means collecting a variety of relevant data and, therefore, relying on multiple sources. Further, an analysis of the case study methods found that the case studies that used multiple sources of evidence were rated higher (regarding their overall quality) than those that relied only on single information sources (e.g., COSMOS Corporation, 1983; Yin, 1984, 2018).

Six multiple sources of evidence are commonly found in the case study investigation; documentation, archive records, interviews, direct and participatory observations, and physical artifacts (Yin, 2018). The objective in gathering this evidence is to strengthen the findings through the convergence or triangulation of data from two or more of these sources. Among them, interviews, observations and documentary evidence are the most common tools used to collect data and no single source has a complete advantage over all others. In fact, according to Yin (2018, p. 113), the various sources are highly complementary and, thus, a good case study will want to rely on as many sources as possible.

Therefore, in this study, to improve the triangulation of data the researcher used multiple methods (as shown in Figure 25) through the application of an interview and direct observation methods as the main source of data collection to develop an understanding of the phenomena. Other sources were also used, such as reviewing the literature, analysing documents and active organisational websites to gather additional information. As previously established, the use of multiple data sources can also greatly improve the quality of research (Golafshani, 2003); hence, the use of several multiple methods in this research has fostered an in-depth understanding of the study.

Figure 25: Data Triangulation Techniques

Interviews <ul style="list-style-type: none">• <i>Telephonic Interviews</i>• <i>Face to face Interviews</i>	Semi-structured open-ended conversations <ul style="list-style-type: none">• Semi-structured and unstructured telephonic interviews• Semi-structured face to face interviews
Direct observations	To investigate and covers real-time actions within the organisational environment.
Documentary analysis	Business reports of the organisations, events, articles, and letters
Website content	To study different website contents and then analysis accordingly

Source: Yin (2018)

In the qualitative interpretive study of SMEs in the US, Ponelis (2015) provided a rationale that using multiple data sources and participants (Maimbo & Pervan, 2005) is preferable for data triangulation (Yin, 2009) and for the emergence of significant ideas (Myers, 2009). The following section explains each of the data collection tools used and how data was collected in this qualitative case study after the implementation of four data triangulation techniques.

6.7.4.1 Interviews

In the case study investigation, one of the most important sources of evidence to gather data is the interview. Interviews can help especially by suggesting explanations (i.e., “how” and “why”) of key events as well as ideas that reflect the relativistic perspectives of the participants (Yin, 2018). The interview is a method commonly used to collect information from people. There are many definitions of interviews, but it is necessarily a person-to-person interaction, whether face-to-face or not, between two or more people with a specific objective in mind (Kumar, 2014). According to Saunders et al. (2016, p. 388), research interviews are an intentional conversation between two or more people, which require the interviewer to establish a good relationship and ask open questions to which the interviewee is willing to listen carefully to and respond accordingly. As discussed next, interviews can be classified as structured, semi-structured or unstructured.

6.7.4.1.1 Structured Interviews

Structured interviews involve asking predefined questions with a limited set of response categories. The interviewer codes the answers according to an established coding scheme (Miles et al., 2014) which is equivalent to written surveys. Structured interviews are used to

collect quantifiable data and are therefore, they are also known as quantitative research interviews (Saunders et al., 2016) and thus are not suitable for this qualitative study.

6.7.4.1.2 Semi-Structured or In-depth Face-to-Face Interviews

A semi-structured face-to-face interview is a flexible meeting in which the interviewer does not strictly follow a formal list of questions, but rather understands in detail the perspectives of the respondents. The order of the questions can also vary according to the flow of the conversation to explore the research questions and the objectives of the phenomena under study (Saunders et al., 2016). Semi-structured face-to-face interviews include more open-ended questions, allowing open discussions with the respondent instead of a simple question and answer format (Doyle, 2017). Within such interviews a researcher can refocus the questions or ask for more detailed information if something exciting or new is emerging. However, while this results in variations between the interviews, they do have a list of topics or categories and possibly some key questions. Therefore, semi-structured face-to-face interviews are manually recorded by handwritten notes or audio recordings and are known as qualitative research interviews (Saunders et al., 2016).

Qualitative researchers rely more on face-to-face interactions in semi-structured and in-depth interviews. This study is based on an exploratory study of interpretive epistemology that includes an exploratory element; therefore, semi-structured face-to-face research interviews were appropriate for the qualitative research design of this study. It was considered that this design understood the meanings that the participants of different SMEs attribute to various factors related to the adoption phenomena of e-commerce.

6.7.4.1.3 Unstructured Interviews

Unstructured interviews do not impose predefined response categories and using open questions allows even more flexibility. These interviews are conducted more frequently by meeting participants face-to-face, conducting a web-based interview or over the phone (Saunders et al., 2016). On the basis of a qualitative case study, after face-to-face semi-structured interviews, It was also considered that unstructured telephone conversations had different meanings for SME participants, which made it possible to understand the hidden phenomena (adoption factors of e-commerce), since telephone interviews in qualitative studies are well suited to the task (Sturges & Hanrahan, 2004, p.108) and an acceptable and valuable method of data collection (Sobin et al., 1993).

6.7.4.1.4 Number of Semi-Structured and Unstructured Interviews

The appropriate number of interviews depends on the size of the unit of analysis (for example, the organisation), the phenomenon studied, the scope of the study and the available time (Pan & Jang, 2008). However, less than 15 interviews are not considered sufficient (Baškarada, 2014). Similarly, Creswell (2014) stated that it is estimated that 16 participants will provide complete and detailed data. However, some researchers have agreed that between 10 and 15 in-depth interviews are sufficient (Baker & Edwards, 2012; Guest, Bunce, & Johnson, 2006).

In qualitative interviews, the researcher conducts face-to-face personal or telephone interviews with the participants or participates in focus group interviews with more than six interviewees in each group. As a result, in this qualitative case study, 24 in-depth semi-structured face-to-face and 20 unstructured telephone interviews were conducted (both during the pilot study and then after face-to-face interviews) in eight SMEs to gather detailed information from the owner-managers and other employees. These are listed in Table 12 and explained in the three phases below the table.

Table 12: Telephonic Unstructured Interviews Information (Pilot Study)

Pilot Study SMEs	Telephonic Unstructured Interviews
1KHIMANUSML	2
2LHRHTLSML	2
5ISBICTMED	2
Total Interviews	6

The First Phase: In the first phase, unstructured telephone interviews were carried out as part of the pilot study; as explained in the previous section (5.7.3). A total of six informal telephone interviews (with three SMEs) were conducted, and information was collected in relation to the general situation of e-commerce in their organisations, their ICT infrastructure units and other technology-related issues. For pilot analysis, the researcher manually wrote all the interview information.

The Second Phase: After the unstructured pilot telephone interviews, a total of 24 semi-structured in-depth face-to-face interviews (see Table 13) were conducted using an open questionnaire. Two or three members from each of the eight SMEs participated; usually

owner-managers and other employees familiar with technology-related issues. Yin (2009) argues that interviewing people with different points of view can be a valuable approach. Whenever possible, points of view should be sought in all relevant sections of the organisation and researchers should not give more weight to the views of senior officials than those at a lower level (Eisenhardt & Graebner, 2007; GAO, 1990). The recording of face-to-face interviews was done manually, taking hand-written notes but some audio recording was undertaken which was subsequently transcribed. Given that full transcription and analysis of recorded interviews can be costly and time-consuming, it can be argued that non-recorded interviews can be more productive (Walsham, 2016). Therefore, it is recommended that researchers rely primarily on paper (Trochim & Donnelly, 2001).

Table 13: Semi-structured Face-to-face Interview Information

Face-to-face SMEs	Total Interviews	Participants
1KHIMANUSML	3	Owner-manager, Finance Officer and Field Marketing Manager
2ISBTICKSML	3	Owner-manager, Co-owner and Accounts Officer
3ISBMANUMED	3	Owner-manager, ICT manager and Marketing Director
4ISBTRVLSML	3	Owner-manager, Finance and Admin Officer, and Marketing Assistant
5ISBICTMED	3	Owner-manager, Finance Manager, and Sales and Support Manager
6KHITRVLMED	3	Owner-manager, ICT Manager, Finance Manager
7LHRHTLSML	3	Owner-manager, Accounts Officer, Admin Officer
8LHRMANUMED	3	Owner-manager, Marketing Manager, Finance Manager
Total Interviews	24	24 Participants

The Third Phase: In the last phase, 14 unstructured telephone conversations (total duration of between 15 and 20 minutes) were also conducted (see Table 14). The purpose of these were to clarify any missing questions, and address any other issues raised during the face-to-face interviews (Sturges & Hanrahan, 2004). Thus, informal discussions were held to complement and provide more details and clarifications about the organisations. A written summary was then sent to the interviewee to validate the results of the study, and after the three phases of interviews, the final data were considered to analyse the results.

Table 14: Unstructured Telephonic Interview Information

SME Name	Total Telephonic Interviews	Participants
1KHIMANUSML	1	Owner-manager
2ISBTICKSML	1	Owner-manager
3ISBMANUMED	3	Owner, ICT Manager, Marketing Director
4ISBTRVLSML	2	Owner, Finance Officer
5ISBICTMED	3	Owner, Finance Manager, Sales and Support Manager
6KHITRVLMED	1	Owner-manager
7LHRHTLSML	2	Owner-manager, Accounts Officer
8LHRMANUMED	1	Owner-manager
Total Interviews	14	

6.7.4.2 Direct Observation

Observation is another key method used to collect data in qualitative case study research. It is an intentional, systematic and selective way of observing and listening to an interaction or phenomenon as it occurs (Kumar, 2014). Since a case study is most likely to be conducted in the real environment of the case, qualitative researchers create the possibility of direct observations (Yin, 2018). William (2007) explained the qualitative method of direct observation and how it differs from participant observation in several ways. First, a direct observer does not try to participate in the context and tries to be as discreet as possible so as not to restrict observations. Second, direct observation suggests a more detached perspective where the researcher attempts to find the phenomena under study via observation more than participation. Technology can be a useful part of the direct observation, for example, the observer can record the phenomenon in a movie or observe behind unidirectional mirrors. Third, direct observation tends to be more focused than participant observation. The researcher observes sampled situations or people instead of trying to delve into the context as a whole. Finally, direct observation tends not to take as long as participant observation.

As in the case of semi-structured face-to-face interviews, observation was used on occasion in this but the interviews were used as the primary source of data collection. Nevertheless, as noted by Mayer (2001), the researcher has to make many choices by making observations, especially on the type of observation, the time of the capture, the number of observations to be made and observations to observe.

During several visits to organisations in three financial cities in Pakistan, the researcher of this study applied a direct observation method and analysed organisations and certain situations at the same time when collecting data from interviews with owner-managers and other participants. These observations were also applied to the analysis of the SMEs when studying the content of their website. Actual visits to organisations were also reviewed and observed for this study. The researcher observed an extended conceptual framework model for the adoption of e-commerce in SMEs, as well as how owner-managers explained the use of technologies according to the categorised themes of the TOE in their business processes, the adoption process of e-commerce adoption in SMEs and the usage of their website. The researcher has also observed personally – and through various experiences – some of the issues related to e-commerce adoption and its subsequent development, as well as the reasons why organisations have faced these problems when using the technology.

In addition, during the interview phases the level of motivation to choose a specific direction in the use of technology and to understand the general environment of e-commerce adoption in SMEs was also observed. The absence of e-commerce activities was further observed in the business processes of various SMEs. Some key informants – including lower-level employees and other staff members – did not know how to use e-commerce applications and did not know about innovations. Most of these staff lacked information and knowledge about the use of the latest ICT infrastructure units to manage websites and their content. Using these observations, the researcher identified the organisation's overall position on the adoption of e-commerce technologies.

6.7.4.3 Documentation

Documentary information is a systematic procedure for reviewing or evaluating printed and electronic documents (computerised and transmitted over the internet). Like other analytical methods of qualitative research, documentary information requires data that can be examined and interpreted for meaning, understanding and empirical knowledge (Rapley, 2007; Strauss & Corbin, 2008). The documents contain text (words) and images that have been recorded without the intervention of a researcher. In this study, the strategies of Yin (2018), and earlier Mayer (2001), were used to gather in-depth information from various

organisations. In this study, relevant documents were available on specific issues, but it was not possible to gain access to all the documents requested. In some cases, documents were lost or shredded but in this study, several data sources were considered:

- Organisation memoranda concerning the terms of the commercial contract and other legal details were analysed.
- Future implementation agendas and technology announcements that had been discussed in Reports on upcoming technology events, such as conference publications and technology adoption seminars, were also assessed.
- Organisational hierarchy, administrative documents, business proposals, technology improvement plans and internal progress reports.
- Case studies on formal technology adoption including ICT infrastructure units and other technology-related implementation and development reports evaluated in the business environment of the organisations.

These and other types of documentation were all increasingly available through internet searches and organisational websites such as company information, mission, goals and future development plans, as well as Statistical reports on organisational development provided by SMEDA and other local institutes, including the (RCCs and the SBP). The researcher in this study was authorised (by the organisation's management) only to use the documents in the premises of the case study organisations due to the confidentiality of the documents.

6.7.4.4 Organisational Website Content Analysis

The researcher of this study further analysed the content of the website to discover different e-commerce transactional activities on the web pages of various organisations. As a result, the analysis is based on 13 characteristics of the e-commerce website, as discussed by Chaffey & Chadwick (2016, p. 558). These are:

- overall website appearance (web page design and structure),
- organisational history and company profile information,
- information clarity (adequate information on products and services),
- customer data security and privacy,
- speed of downloading pages including product pictures,
- site navigation schemes,
- search engine option tab,
- hyperlinks to other information,
- information on member facilities,

- customer feedback option regarding services,
- the possibility of obtaining information in a limited number of pages instead of going through several pages,
- visitor statistics, and
- social media pages affiliations (Facebook, Twitter, YouTube and Instagram).

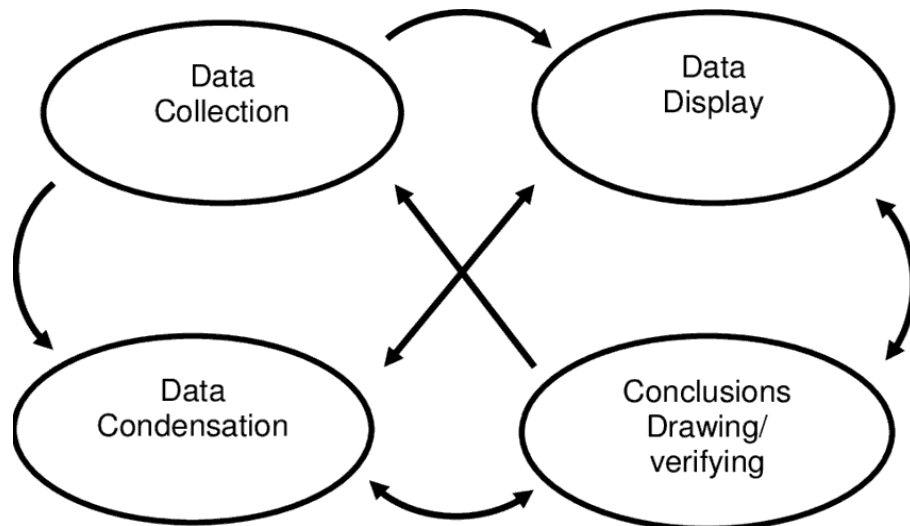
6.7.5 Data Analysis Procedures

This qualitative study is associated with an interpretative philosophy because the qualitative researcher in this study had to understand the subjective and socially constructed meanings expressed by the participants in this research on e-commerce as a phenomenon under study. Qualitative analysis of case studies has been described as the most difficult and least codified part of the case study process (Eisenhardt, 1989; Yin, 2014). Eisenhardt and Graebner (2007) and Onwuegbuzie et al. (2012) even suggest avoiding the use of the term “qualitative research”; rather, recommending contrasting the qualitative approach used with other qualitative approaches. By analysing the data, the qualitative researcher attempts to understand and interpret phenomena related to the meaning of the participant's place (Creswell, 2014).

Before the analysis began, the researcher in this study decided to use the NVivo 9 software to analyse the qualitative data. However, later, it was decided to use personal data analysis to give more meaning to texts, written notes and images (Walsham, 1993, 1995, 2016). This was in order to compare and reflect on the issues raised in the cases by doing an integrated analysis the meaning of the data as indicated by Miles et al. (2014). Therefore, this study adopted thematic approaches because the NVivo 9 software could not analyse iteratively the different stories gathered during the interviews, and thus, each case was separately analysed and then the results compared.

This section of the analysis builds on previous studies (e.g., Saunders et al., 2016; Miles et al., 2014; Walsham, 2016; Yin, 2018) to systematically analyse qualitative data. Miles et al. (2014) define the analysis as consisting of three simultaneous streams of activity components: data condensation, data display, and conclusion drawing and verification (as shown in Figure 26). The information obtained in this study from open-ended semi-structured face-to-face and unstructured telephone interviews, documentary reviews, direct observations, written notes, and website analysis were then used as a basis for further analysis.

Figure 26: Qualitative Data Analysis Phases



Source: Miles et al. (2014, p. 12)

According to Miles et al. (2014, p. 12) and Saunders et al. (2016), the qualitative analysis process consists of three contemporary themes:

1. Data Condensation: refers to the process of selecting, concentrating, simplifying, abstracting and transforming data that appears in all written field notes, interview transcripts, documents and other empirical materials (Miles et al., 2014) to decide which category labels best summarise a solid piece of information, and which evolving story to tell from the original data.

During the first phase of this study, in interviews with organisations, the researcher wrote field notes, document summaries, diary notes and scripts to highlight what participants had said about e-commerce and how it works in the business environment. In this study, data condensation began in 2016 and continued until the end of the study. The notes and transcripts were reviewed several times to highlight potentially essential issues and experiences. According to Easterby-Smith, Thorpe, and Lowe (1991), this method is used to familiarise the researcher with the data collected and to begin the process of organising and structuring the data. It also improves the understanding of the different themes generated by the literature (Saunders et al., 2016).

After the data condensation, the next phase was to generate the initial codes. According to Miles et al. (2014, p. 72), codes are mainly used to recover and categorise fragments of similar data. This is so the researcher can find, extract and quickly group the segments related to a question or research topic. In this study, transcripts of the interviews were validated with handwritten notes and codes were generated that were based on six literature

issues and Tornatzky and Fleischer's (1990) TOE framework. In the data, the selection of codes (nodes) as well as the configuration and reconfiguration of the code provide appropriate responses to research questions (Bazeley & Jackson, 2013).

The next step was to identify preliminary topics (themes). As Braun & Clarke (2006) explain, there are no strict rules regarding themes. A theme is characterised by its importance. In this case, the codes were reviewed and some of them were clearly grouped into one theme. For example, there were several codes related to size, location, age and sector and they were collated under an initial theme called Overall Characteristics and Situation.

In the case of semi-structured interviews, handwritten notes and audio transcripts were carefully examined to find similarities and differences in the responses of SME participants to better understand the field data. These data have identified a number of clear and broader themes related to six literature issues and broad technological, organisational, environmental and individual factors. As discussed earlier, in this study, a thematic analysis approach was applied for the identification of appropriate themes since it is considered the most appropriate qualitative approach. According to Braun and Clarke (2006, p. 79):

"Thematic analysis is a method used to identify, analyse and inform the patterns or themes in the qualitative data and can be found by reviewing extant literature, and through the personal experience and meaning of the researcher across a data set".

Another advantage, particularly from a learning perspective, is that it is a method rather than a methodology (Braun & Clarke 2006; Clarke & Braun, 2013; Maguire & Delahunt, 2017). This makes it a very flexible method, a considerable advantage given the diversity of learning work. The purpose of the thematic analysis is to identify the themes, that is, the important or interesting reasons in the data, and to use them to address the research or to give an opinion on a problem. It is much more than just summarising the data; a good thematic analysis interprets the data and gives it meaning. A common pitfall is to use the main interview questions as themes (Clarke and Braun, 2013; Maguire & Delahunt, 2017). In general, this reflects the fact that the data has been summarised and organised rather than analysed (Maguire & Delahunt, 2017).

The themes are patterns in the data sets that were important for describing the phenomena studied (story line) and associated with the research questions in the study. Therefore, after transcription of the interviews, themes were categorised related to the TOE framework and to the following six literature review conceptual categories: overall characteristics and situation of SMEs, usage of ICT infrastructure, role of owner-managers, factors affecting e-commerce adoption, role of government, and lastly, support of local business institutes prior

to the data collection phase. With these six existing categories and TOE framework, the list of six themes was modified to fit new emerging themes and sub-themes and trends to generate an explanation of the research question and the objectives that constitute the focus of this research.

2. Data Display: the second substantial flow of analysis activity is the visualisation of the data. A display is a set of organised and compressed information that can draw conclusions and actions (Miles et al., 2014).

After data condensation, the revealed themes were associated with the TOE model and the conceptual framework of the six categories of literature. At this point, the researcher also determined whether a more detailed analysis was needed or if conclusions could be drawn. Miles et al. (2014) describe some ways to display data; including matrices, charts, graphs and networks. Looking at the displays helps the researcher understand what is going on, access the data and act on it; be this through more in-depth analysis or taking action based on that understanding, to draw justifiable conclusions. In this study, the themes and sub-themes related to the six literature categories and TOE framework were shown in tables. In the rows, the headings of the six issues (themes) were listed, while TOE sub-themes plus the extended individual factors were listed in the columns in front of each theme. In addition, the research data was organised by returning to the research questions and objectives (established in Chapter 1) and checking whether these questions could be answered using data collected on the basis of the questions and objectives of the study.

3. Drawing and Verifying Conclusions: the third and final flow of analysis activity for the qualitative researcher is the conclusion and verification drawing. From the beginning of the data collection, the qualitative analyst interprets what things mean by pointing out patterns, explanations, occasional flows and propositions (Miles et al., 2014).

This process involves reviewing what the analysed information means and evaluating its implications for the issues in question. The verification – linked in its entirety to the drawing of conclusions – involves reviewing the data as many times as necessary to cross-check or verify these emerging findings. This also helps the researcher to rank the data appropriately, which leads to valid conclusions. The conclusion and verification process are an essential process in producing and developing appropriate and valid evidence based on the results of the study; which can only be achieved through ongoing audits to generate new knowledge. For this reason, valuable data on contextual factors of the themes were established, and emotional significance can be found in the results. After that, using their knowledge and experience, a researcher extracts the meaning and develops explanations

of these data. Using this process, the researcher in this study discovered the problems and also drivers of e-commerce adoption in the various SMEs in a developing economy context.

The researcher involved in this study created and developed narrative insights through stories of lived experiences from face-to-face and telephonic interviews with owner-managers and other employees about e-commerce within the participating SMEs. In order to produce strong interpretative conclusions based on the textual data – and their condensed version found in the matrices – in this study a thematic analysis approach was taken, as previously indicated.

In this study, the "in the case" analysis was initially performed after the transcription and reading of the data several times at the individual case level. Themes were then ranked and the transcripts and notes were developed as coherent, manageable and rich descriptions for each case. In addition, they were structured according to the descriptive framework to allow for further case analysis. According to Ponelis (2015), these rich images in the form of case histories allow the reader to judge the transferability of interpretation and results, which also increases reliability.

The main objective of the analysis "within the case" was to identify the constructs and patterns that can be generalised for each case; independently of the research questions. Once the relevant case data were reorganised into codes, they were grouped and sorted by themes (see Table 15). For each organisation, the unique factors were identified from the analysis "within the case" that hindered or facilitated the e-commerce adoption. Interview narratives were also shared with participants and they were asked if there were inaccuracies or misunderstandings within them. If they were unhappy with the narratives they were asked to inform the researcher within three weeks. This confirmation also adds to the credibility of the research (Creswell, 2014).

In the next step, a "cross-case" analysis was performed to compile data from a multiple case study; first examining the results for each individual case study and then observing the similar pattern of the results in the studies of case to produce matrices. Case studies using both internal and cross-case analysis have been found to be more effective in generating theoretical frameworks and formal proposals than studies using only case-by-case or cross-only analysis (Barratt, Choi, & Li, 2011). In this study, cross-case analysis was conducted by identifying and categorising similarities and differences between cases in order to reinforce the theory by reciting the stories of the interview participants and the things heard during the interviews, and through physical observation to extract similarities and commonalities from what the researcher observed on the ground. Finally, each case study

was constructed in such a way that the data collected were classified into significant categories in all cases.

The themes and patterns were then discussed in the context of the existing literature; a process that Eisenhardt (1989) calls the limiting literature, and the result of this level of analysis is the interpretation of the results. In a cross-case analysis, Miles et al.'s (2014) model and a contrast classification method were used to produce matrices. The cases were analysed in pairs, then by industry groups, trusted third parties, and local and government institutes to look for similarities and differences in the data. New findings or elements/trends identified during the analysis were then captured and compared to sector information obtained from stakeholders. Comparing the results with what has been described in the existing literature, it was confirmed that several themes or patterns related to the six literature categories and TOE framework model reported in the literature also apply to some Pakistani SMEs.

With this process, the overall TOE framework and extended individual factors were identified and discussed according to the extended model. This new model describes the TOE and extended individual factors for the understanding of owner-managers and other e-commerce adoption participants who have had a positive or negative impact on their organisations. Then, conclusions were drawn from the discussion of each case study and the methodical comparison of the results in response to the research questions. Some of the themes and patterns relevant to each organisation are incorporated into the discussion of the results in Chapter 9. Finally, the concepts of Miles et al. (2014) as well as the researcher's own knowledge and creativity (Walsham, 1993, 1995, 2016) were used to make more sense of the text, images and handwritten information collected during the field interviews.

Table 15: A Manual Coding list for Data Analysis

Themes	Sub-themes	Description	Manual Cods
1.Overall Characteristics and Situation	Company Profile	Identifies the general characteristics and situation of SMEs, organisational history, hierarchical structure and the information of the different departments in order to identify the current environment for the adoption of electronic commerce.	OCS: Size Sector Departments Location Structure Clients and customers Objectives Number of Employees

Table 15 (cont.): A Manual Coding list for Data Analysis

2.Usage of ICT Infrastructure Units	Characteristics of ICT units. Availability and quality of internet connection	Identifies the availability and quality of latest ICT infrastructure units motivates for e-commerce adoption.	UIIS: Computers ICT Equipment's Internet connections Telephone Lines Operating system Website availability Social Media 2.0 tools E-mail usage Communication channels infrastructure Marketing tools
3.Role of the Owner-manager	Personal entrepreneurial characteristics	Identifies the role of owner-manager for e-commerce adoption	ROM: Personal characteristics Decision maker Family business Authoritative Behaviour Support Managerial Positions Decision power
4.Factors Affecting E-commerce Adoption	Technological contextual factors	Identifies what technological factors influence the adoption or non-adoption of e-commerce in SMEs	TOE&OM: Hardware Software Security Privacy Credit/debit card Electricity Infrastructure e-readiness Internet speed ICT industry Cheap Software Payment
	Organisational contextual factors	Identifies what organisational factors influence the adoption or non-adoption of e-commerce in SMEs	Email usage Internet availability Finance options Budget Strategy Investment Website content Marketing tools Web Language Skills & expertise Size & Structure Website availability Web payment

Table 15 (cont.): A Manual Coding list for Data Analysis

	Environmental contextual factors	Identifies what environmental factors influence the adoption or non-adoption of e-commerce in SMEs	Traditional Selling Trust Telephone interaction Face to face interactions Cash payments Delivery payments Legal framework Government support Education IT awareness Payment mechanism Instability External business environment Business Partners awareness Supplier interest Culture
	Extended individual contextual factors	Identifies what individual factors influence the adoption or non-adoption of e-commerce in SMEs	Owner-manager Innovativeness Education Awareness Knowledge Training Enthusiasm Characteristics Senior employees Management Role
5.Role of Government	GOP support for e-commerce adoption	Identifies the role of government influence the adoption or non-adoption of e-commerce in SMEs	GOP: Government Support Raising awareness IT Initiatives Monopoly Large organisations Banking loans Contribute to economy Finance options Regulations and framework
6.Support of local business institutions	Institutional assistance for the SMEs' e-commerce adoption	Identifies the support of local businesses influence the adoption or non-adoption of e-commerce in SMEs	SLBI: SMEDA Training Support Favouritism Assistance Finance access Workshops Seminars Ministries role Networking services Neglecting SMEs

6.8 Research Reliability and Validity

Qualitative studies must be particularly sensitive to issues of validity and reliability which can be defined as both internal and external (Yin, 2018). According to Creswell and Creswell (2018, p. 199), qualitative validity means that the researcher verifies the accuracy of the results using certain procedures, while qualitative reliability indicates that the investigator's data collection method is consistent with other valid research. According to Saunders et al. (2016), validity and reliability reduce the possibility of poor research results. In this study, owner-managers were interviewed, as organisation decision-makers, in relation to the adoption and implementation of e-commerce projects. Other management staff from various departments of the eight organisations were also interviewed to allow triangulation, which also contributes to increasing the validity and reliability of the data collected during the interview phases.

6.8.1 Research Validity

Validity is one of the strengths of qualitative research and is based on determining whether the findings are accurate from the standpoint of the researcher, the participant or the readers of an account, and adequately reflects the real meaning of the concept under consideration (Creswell & Creswell, 2018; Creswell & Plano Clark, 2007). Yin (2018) identified two types of validity in the investigation of the case study; internal validity and external validity.

Using the interview questionnaire, the internal validity of this study was supported by the rigorous process of handling interview research questions. After designing the questionnaire, it was tested during the pilot study phase. The interview questions were carefully prepared, tested and refined according to the participant and the researcher's supervision team. Also using the literature search, the questionnaire was developed, analysed and modified during the pilot phase. The literature review helped the researcher identify the gaps and focus mainly on the barriers and drivers of e-commerce adoption in developed and developing economies. As a result, the interview questions were designed to reflect that.

Yin (2018) argued that external validity is the extent to which the findings of the case study can be generalised analytically to other situations that were not part of the original study. In this study, the researcher used multiple case studies to develop solid evidence instead of using just one case study. Yin (2009) also warned that external validity is the main obstacle in the study of qualitative research cases. To overcome this obstacle, the researcher in this study chose the purposive sampling method as an appropriate method in testing

generalisation. The purposive sampling method consists of participants who best represent the topic of the research or who have the best knowledge of the study. Therefore, with the entire organisation as the unit of analysis, access to the owner-manager as a participant was a crucial consideration in selecting the multiple cases from other employees with experience relevant to e-commerce technology. Finally, eight organisations from four sectors were selected for final data collection from three financial cities in Pakistan. In addition, as part of the process of data collection, the researcher asked open-ended questions during the semi-structured and telephonic interviews, which allowed participants to share their opinions and experiences freely concerning the research objectives that they considered relevant for the discussion.

Moreover the researcher provided the participants with an open and comfortable environment to discuss their views and experiences by choosing the correct location for the interview; which was their office. The researcher also made himself known to the participants and established a professional relationship before the direct personal interviews, which helped participants to have more confidence to provide relevant answers to the research questions. During the interviews, the researcher first began with the general introduction of the research topic, the education system in the UK and then moved on to the research questions.

Therefore, the research results of this study are valid for the generalisation of other SMEs in Pakistan, as Pakistani SMEs are homogeneous and share many common characteristics. As a result, the outcomes from the eight SMEs could also be applied elsewhere. However, it is noted that Yin (2003) felt that it was possible to generalise by involving other organisations and countries, but suggested that researchers be cautious.

6.8.2 Research Reliability

According to Yin (2018, p 46), the objective of reliability is to minimise errors and biases in a study. He suggested that qualitative researchers should document the procedures of their case studies and include as many procedural steps as possible. In addition, Yin (2009) believes that reliability could be attained by sustaining the consistency of the analysis and minimising the risk of error and bias. For example, checking the transcripts to make sure they do not contain obvious errors during transcription of the interview. It was also recommended to set up a case study protocol and a detailed database, so that others can follow the same procedures. These conditions were all been met during the conduct of this study.

The case study protocol contributes to reliability by standardising the survey. Relevant documents include a general description of the project, key research questions to be asked during interview phases, field interview procedures and field data recording methods. In addition, the researcher recorded and transcribed all interviews to minimise inferences. Therefore, in this study, the researcher developed the case study protocol, and provided both a model structure for the case study and a guide on how to develop the studies to improve reliability. Using the case study protocol and database registration, the researcher can easily access and retrieve data at any time for re-analysis.

In addition, during the data collection and analysis stages, the researcher kept in touch with the study participants to provide additional assistance, if needed, during the research process of this study. In addition, during the investigation of the philosophy and methodology of this study, the researcher discussed his research process with several doctoral research colleagues and group members as well as with a supervisor to solve the research problems that arose during the study. For example, research onion layers, research approaches and strategies, interpretation of the data, identification of the themes and final research findings.

6.9 Ethical Considerations

The nature of ethical issues in qualitative research studies is difficult to identify and differs with respect to quantitative research issues. For example, there are potential ethical conflicts about how a researcher accesses a community group and the effects the researcher may have on participants (Orb, Eisenhauer, & Wynaden, 2001). Qualitative researchers focus their research on the exploration, review and description of people and their natural environments and thus, the concepts of relationships and power between researchers and participants are integrated into qualitative research. The desire to participate in a study depends on the willingness of a participant to share their experiences. According to Ramos (1989), social scientists need to strike a balance between the principles of research and the well-being of the client. Further, Richards and Schwartz (2002) argued that when conducting qualitative research, there are important ethical issues to consider, such as anonymity and confidential and informed consent. As a result, Teesside University's ethics policy requires researchers to seek ethical approval before conducting field research. Therefore, a detailed request was submitted to the ethics committee with all necessary information provided, and procedures followed, and this was approved by the committee (see Appendix G). Several documents were included in the ethics application: the participation request form, and study information and confidentiality issues (indicating that no personal information about the participants and the name of the organisations would be

revealed at any stage of the research and should remain confidential). However, code names could be generated and used throughout the study. A consent form was also been included so that participants could participate freely in the study and withdraw at any time. Additional cover letters were also submitted during the ethics application.

6.10 Summary

This chapter examined the philosophies and qualitative research methodologies adopted for this study, based on the explanation of the elements of the research onion, as explained by Saunders et al. (2016, p.124). It also included a brief analysis of epistemological and methodological philosophies based on interpretive research paradigms and how they underlie the design of research. Then it covered the types of qualitative research, the approaches, the case study strategy and the longitudinal time horizon. Instead of relying on a single data source, it was outlined how this study implemented multiple sources of data (triangulation), such as interviews, observations, documents and web sources (to collect data from participants; with the aim of mainstreaming the results of e-commerce adoption by SMEs. The analysis method was then discussed on the basis of the work of Miles et al. (2014) to systematically analyse the qualitative data. This was undertaken in order to produce strong interpretative conclusions based on textual data (and their condensed version found in the matrices) and a thematic analysis approach was discussed to look for emerging themes in the data and help draw a conclusion based on the extended TOE framework model. SME selection, ethical considerations and data collection instruments were discussed. The next chapter examines the presentation of data and the analysis of case studies.

Chapter 7: Data Presentation and Analysis

7.1 Introduction

This chapter presents and analyses the data of SMEs concerning the adoption of e-commerce. The primary purpose of this study was to identify the hidden factors in relation to the adoption of SMEs' e-commerce in Pakistan. The study targeted eight SME organisations from four sectors including manufacturing, hospitality, tourism, and ICT hardware. This chapter is constructed as follows: firstly, a discussion of six literature issues involved and themed as: overall characteristics and situation of SMEs, usage of ICT infrastructure units, role of owner-managers, factors affecting the adoption of e-commerce, the role of the GoP, and lastly, support of various local business institutes. These literature issues named as factors and may be grouped into six broad themes and, as explained earlier, these are examined and discussed according to the literature review and TOE framework. The second part of the chapter discusses the sub-themes related to technological, organisational, environmental and extended individual (TOE) within a theme (factors affecting e-commerce adoption) model in the light of Torntazky and Fleisher (1990). This chapter has used the concepts of Miles et al. (2014) and Braun and Clark (2006) as well as the researcher's own knowledge and creativity (Walsham, 1993, 1995, 2016) to give more meaning to the texts, images and handwritten information collected during interactions between the participants in the interview phases.

7.2 Data Analysis

In this study, data were analysed on the basis of inductive reasoning using a two-step process. After reading the transcripts of each company, initial codes were generated for each organisation. This step was repeated for each case study and the coded data was grouped and sorted under different themes and sub-themes (see table 15 in Chapter 6). The six themes and sub-themes were identified in the interview data of the case studies. In order to provide answers to relevant research questions, the firm analysis was constructed to identify hidden contextual factors for the adoption of e-commerce in each organisation. These factors were then examined and grouped according to the TOE model (Torntazky and Fleischer, 1990). An additional individual contextual factor was then added to the framework to further emphasise the role of owner-managers and management in the adoption of e-commerce.

7.3 Respondent Information

Table 16 provides details of the participants in this study.

Table 16: Study Participants

SMEs	Size	Participants
1KHIMANUSML	Small	Owner-manager, Finance Officer and Field Marketing Manager
2ISBTICKSML	Small	Owner-manager, Co-owner and Accounts Officer
3ISBMANUMED	Medium	Owner-manager, ICT manager and Marketing Director
4ISBTRVLSML	Small	Owner-manager, Finance and Admin Officer, and Marketing Assistant
5ISBICTMED	Medium	Owner-manager, Finance Manager, and Sales and Support Manager
6KHITRVLMED	Medium	Owner-manager, ICT Manager, Finance Manager
7LHRHTLSML	Small	Owner-manager, Accounts Officer, Admin Officer
8LHRMANUMED	Medium	Owner-manager, Marketing Manager, Finance Manager
Total Interviews		24 Participants

In the next section factors related to six themes and sub-themes (see table 15) discussed named as: overall characteristics and situation of SMEs, usage of ICT infrastructure units, role of owner-managers, factors affecting the adoption of e-commerce, the role of the GoP, and lastly, support of various local business institutes.

7.4 Overall Characteristics and Situation

The first theme provides information on each SME in relation to the general characteristics and situation. The qualitative data shows that the characteristics of the enterprise and the current situation influence the adoption or non-adoption of e-commerce. In this study participants from the case study organisations emphasised the importance of their organisational characteristics and business situations in terms of size of organisation

(medium or small), sector, total number of employees, location of the offices, departments, and customers.

The SMEs surveyed pointed out that the sector and the number of employees, including commercial departments and their functions, allowed SMEs to understand the global adoption of innovative technologies such as e-commerce. Therefore, the first theme is divided into different parts and then grouped in one “company profile” as sub-themes.

7.4.1 Company Profile

7.4.1.1 Size, Age, Sector and Location

Qualitative analysis provided further insights into this factor and showed that the overall company profile in terms of size, age, sector and location is complex and problematic for SMEs. This affects their ability to adopt and then conduct e-commerce business in the commercial environment. SME participants briefly introduced their organisations and highlighted the characteristics and general situations of their business processes for e-commerce projects. One of the participants from 1KHIMANUSML emphasised the role of size, age, sector and location of the organisation in explaining the overall profile of their organisation for the initial adoption of e-commerce technologies:

“We belong to a small manufacturing company with 22 employees. It has been based in Karachi since 2009. This company manufactures basic kitchen and vanity units, modifying size and design according to the needs of its clients. Organisation has a physical presence in Karachi, where it has a showroom with eleven kitchens and 30 vanity unit samples in different designs, colours and sizes. We are involved in B2C and B2B sales and has a warehouse and a factory. Most of the buyers are locally based, both local home consumers and business construction companies” (Owner-manager, 1KHIMANUSML).

However, it was believed that in terms of size, the organisation is small and employs a limited number of employees compared to other SMEs in the local market of Pakistan. Another participant from the same SME (1KHIMANUSML) also observed the organisational departments and business processes for e-commerce and said that:

“The organisational informal departments has been divided into two central departments: warehouse (factory) and showroom (head office). The showroom includes sales, marketing, finance and design departments. Manufacturing and production are carried out in the warehouse department of the factory based in Karachi, which could affect e-commerce adoption decisions in the organisation” (Finance officer, 1KHIMANUSML).

Similarly, in terms of company profile and business characteristics to support e-commerce at initial level, another owner-manager of an SME (2ISBTICKSML) stated that 2ISBTICKSML was a small tourism and ticketing organisation. It has been operating in the

city of Islamabad near Murree Road since 2005. The company profile has also highlighted various features that help to understand the role of e-commerce in the organisation. The manager argued that his organisation's profile essentially contains brief information about the history and evolution of the business that could affect the future performance of e-commerce and the reputation of the company:

“Only 15 employees currently work in the organisation, including the owner-manager, two co-owner/managers with eight sales and booking staffs, accounts and an admin/HR officer. The main objective of the organisation is to make money by selling tickets worldwide and organising a limited package of trips and vacations, specifically in Middle Eastern countries, such as Saudi Arabia, the United Arab Emirates, Malaysia and Singapore. The organisation also provides visa assistance to local customers and corporate clients wishing to travel to Europe (and some Middle Eastern countries) on behalf of major travel agencies in the country” (Owner-manager, 2ISBTICKSML).

Although the organisation has basic departments to perform daily business activities, however, the accounts officer of the same organisation (2ISBTICKSML) believed that with a flat hierarchy, the organisation did not have official IT departments or sufficient levels of administration to support e-commerce activities. Being a family business, most employees are family members or friends of the owner-manager. As the accounts officer described:

“Our organisation consists mainly of flat departments comprising HR/administration, accounts administration and sales. The owner-manager controls the HR/administration department that deals with daily activities including recruiting and supervising staff members, planning and maintaining the daily budget and preparing promotional materials and displays on Facebook with the sales team. The co-owner and his son control the accounts department of the organisation. In the sales department, travel agents are responsible for promoting and marketing the business, dealing with clients' complaints and queries, ticket sales, assistance with visas and the recovery of payments” (Accounts Officer, 2ISBTICKSML).

Regarding the company profile for e-commerce, the Marketing Director of another firm 3ISBMANUMED fully agreed that the general company profile had an impact (positive or negative) on e-commerce adoption decisions. He further explained that the business sector and the bases (several branches within the country) and formal departments could influence the decision to adopt e-commerce. This idea was corroborated by the ICT Manager of the same organisation who stated:

“Our business was established in 1997 to manufacture various veterinary surgical instruments such as surgical sets, scissors and dental instruments. It is a medium-sized B2B and B2C organisation with bases in two Pakistani cities: Islamabad (head office with other functional departments) and Faisalabad (manufacturing factory), and has 51 employees. The company's primary function is to manufacture its products in its Faisalabad-based factory and then sell them to business and domestic clients in Pakistan. The organisation also exports a limited number of instruments to Italy and other European countries to meet the demands of local buyers. The Islamabad head office consists of various departments such as

research and development, procurement, HR/finance, ICT and marketing (national and international)” (ICT Manager, 3ISBMANUMED).

The company profile of 3ISBMANUMED is well defined in terms of achieving business goals compared to previous SMEs. In order to support this, the Owner-manager responded that the company profile and business departments were designed in such a way that it motivates employees to perform their part of work together. He further argued:

“The hierarchy of departmental positions defines the lines of communication and the schema of relations internally and externally” (Owner-manager, 3ISBMANUMED).

For SME (4ISBTRVLSML), participants agreed that the overall business profile, including the size of the company and a number of employees, defines the lines of communication and the relationships between the departments which could affect the organisational decisions relating to the adoption of e-commerce. However, the Marketing Assistant from the same organisation believes that because of the weakness of its staff and its informal structure, its organisation is not fully capable of adopting the latest technologies, including e-commerce. He described this by explaining the company's profile and highlighting the general characteristics and situation of the organisation:

“4ISBTRVLSML is a small (12 staff) travel and tourism organisation, founded in 2007 and based in Chak Shehzad – a town near Islamabad. The main purpose of the organisation is to provide hosting services to B2B and B2C clients and meet the needs of customers – individuals or groups with families – travelling to northern areas of Pakistan on holiday. Other clients come from educational institutes, chemical manufacturing organisations and factories, industrial zones and some ministries. We organise limited mountaineering, trekking, jeep safaris, cultural and study tours, fishing, honeymoons and trips to the northern regions of Pakistan as per our company profile” (Marketing Assistant, 4ISBTRVLSML).

Due to an informal company profile and flat business hierarchy, controlled by top management affecting the e-commerce decisions at longer run, the characteristics are similar to the previous smaller organisations (1KHIMANUSML and 2ISBTICKSML). Respondents from these organisations agreed that the informal departments of the organisation sometimes limited the management's ability to fully rely on technological devices. Similarly, the Finance and Admin Officer from 4ISBTRVLSML also confirmed these points of view and explained the situation of his organisation as one which is not strong enough for e-commerce services:

“We do not have a formal department. Most of the departments operate in a simple and flat business hierarchy controlled mainly by the top management. Only three departments with twelve staff members, including drivers and cooks, provide hospitality services that include administration and accounts, marketing, research and development” (Finance and Admin Officer, 4ISBTRVLSML).

However, the medium-sized organisation (5ISBICTMED) has not identified any departmental problem. Their overall organisational characteristics and situation are better than those of former small organisations, but they resemble 3ISBMANUMED. The Sales and Support Manager explained that organisational services work together to achieve business technological goals:

“We are a medium-sized ICT organisation created in 2006 and located in the business centre of Islamabad, Pakistan. The organisation has two sub-branches, in Lahore and Karachi, in addition to the central office in Islamabad. As a medium-sized SME, the organisation has 56 employees and annual sales exceed PKR 50 million. The main function of 5ISBICTMED is to import ICT hardware equipment such as computers, laptops, printers and peripherals, network tools and digital communication technologies, including mobile phones, multimedia projectors and network hardware and software from Malaysia, China and Singapore. Its core business is selling umbrella ICT devices to B2B and B2C end consumers” (Sales and Support Manager, 5ISBICTMED).

Similarly, the Finance Manager from the same company 5ISBICTMED argued:

“We have a formal department including a fixed set of intra-organisational rules of procedure to control and manage its services. It consists of a sales and support department, HR administration, logistics, warehouse operations and a finance department” (Finance Manager, 5ISBICTMED).

In addition, the Owner-manager of 6KHITRVL MED felt that the overall company profile gave the similar impression of highlighting the role of e-commerce and its adoption at initial level. All of the participants said they have enough capacity to adopt e-commerce related technologies. Also, the medium size of the organisation and the official departments help the organisation to embrace e-commerce activities and run the technological applications. Regarding organisational departments, the Owner-manager stated:

“It consists of formal departments working together to improve the organisation, including finance, ICT, HR and administration, and sales and marketing” (Owner-manager, 6KHITRVL MED).

The ongoing discussions with the participants further provided information on the operational hierarchy of the company and its departments which can support the decision to adopt e-commerce model. The ICT Manager stated:

“6KHITRVL MED is a medium-sized SME based in Karachi since 2002 and focusing primarily on the travel and tourism sector. The organisation has 90 employees divided between the higher managerial level, the medium technical level and the lower administrative level. As a medium-sized travel management company in Pakistan, 6KHITRVL MED has adopted a unique business model for managing its online activities. The organisation has progressively transformed from a traditional travel agency to a travel management company and has developed more and more divisions dedicated to corporate, retail (B2C-leisure and religious) and business agents (B2B) customer segments” (ICT Manager, 6KHITRVL MED).

SME (7LHRHTLSML) is part of the small hospitality sector and has been in the city of Lahore since 2012. Interviewees stated that the company's background and general characteristics were a key element in adopting the latest technology, including e-commerce. However, respondents feel that their company profile is not strong enough to accept the latest technology compared to other SMEs in the local business market of Pakistan. To understand the overall nature of the organisation, the Accounts Officer presented the company profile, however, observations revealed that while the organisation is making money, it does not embrace e-commerce:

"We are a part of the small hospitality sector and has been in the city of Lahore since 2012. Lahore is the business centre of Punjab province, and most customers belong to the tourism industry. The company offers limited hotel accommodation facilities and is quite small with 22 permanent employees working in its various departments. The overall commercial situation of the firm is conventional as most of its customers are individual owners of different companies, B2B corporate clients, and local and national B2C customers from different parts of the country" (Accounts Officer, 7LHRHTLSML).

Furthermore, according to 8LHRMANUMED respondents, they believed that their business is made up of more formal departments and adequate employees able to effectively manage the organisation's tasks that can help achieve the firm's e-commerce goals. During the interview, one of the respondents described the general profile of the organisation:

"8LHRMANUMED is a medium-sized SME; an auto parts manufacturing company which has been based in the industrial city of Lahore since 2003. To fulfil the company mission, it has a network of national dealers for product marketing. The organisation does not only target B2B and business to government, but also B2C customers. 8LHRMANUMED has a strong customer base that includes educational and public health institutes and private sector organisations. The formal departments involved in the process are sales and marketing, purchasing and development, warehouses and production, and after-sales service and finance. The employees, including senior executives, non-managers and workers, number around 80" (Marketing Manager, 8LHRMANUMED).

Thus, after the discussion with the participants of various SMEs, it is proved that the theme of general profile of the company influences the decision to adopt e-commerce at each organisational level.

These views showed that, with the exception of smaller SMEs (1KHIMANUSML, 2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML) and, to some extent, medium-sized SMEs (3ISBMANUMED, 5ISBICTMED, 6KHITRVLMED and 8LHRMANUMED), they were better placed to adopt e-commerce because of their company's profile and characteristics. At some stages, the general characteristics and the current situation of SMEs allow their owner-managers to adopt e-commerce-related applications and execute them successfully. However, in the case of smaller SMEs, their general characteristics and the current situation

did not allow their managers to adopt e-commerce at initial levels, as the characteristics of their business profile were insufficient to support e-commerce applications.

The next theme, which is the use of ICT infrastructure units, describes the availability and quality of the latest ICT infrastructure for the adoption of e-commerce activities in SMEs.

7.5 Usage of ICT Infrastructure Units

Docktor (2004) observed that the term “electronic preparation” represented the development of several levels of ICT infrastructure units involving different ICT activities. To conduct e-commerce in SMEs, companies need to adopt and implement the necessary ICT infrastructure units. SMEs in particular need to connect to ICT-related infrastructure tools, such as latest computers, personal digital devices, laptops, faster internet connections, printers and fax machines as well as and other networks and internet email communications to make e-commerce applications work smoothly (Laudon & Laudon, 2014, p. 195). Given its vital importance, the use of ICT infrastructure units and their availability have been supported by SME participants as an important theme in the Pakistan and can be divided into several parts (sub-themes) such as characteristics of ICT units and availability and quality of internet connection.

7.5.1 Characteristics of ICT Units

SME participants believed that the availability of latest ICT infrastructure units (hardware and software) play a vital role in each organisation’s adoption of an e-commerce strategy. In the case of 1KHIMANUSML, qualitative data revealed that the overall company profile of the organisation, it negatively affected the e-commerce adoption strategy. The strategy is, in fact, not fully developed, as it fails to use information and communication technology units effectively. Respondents further believed that their organisational ICT infrastructure needed to be updated to support e-commerce: the organisation had only three central computers used to design the manufacturing products and control the financial movements of the accounting department. The installed operating systems were out of date, and most of the employees used the pirated version of Windows XP SP3. For example, the Owner-manager explained:

“For a small organisation, it is affordable to use pirated software, they are cheap and readily available, and anyone can buy from anywhere in the country” (Owner-manager, 1KHIMANUSML).

The Finance Officer from the same organisation agreed with these, saying:

“For the sales department, six personal laptops were given only to the sales team and field marketing manager to manage field customers, record contacts and orders information to use in the future. Microsoft office suite Word and Excel sheets were mainly used to record all the details of the customers’ orders. The owner-manager was the only person who used the latest ICT equipment to communicate centrally through the internet: a MAC book, a fax machine and a printer with a latest pirated version of the Windows 10 operating system” (Finance Officer, 1KHIMANUSML).

During the visits to the warehouse department, an interaction was made with the Field Marketing Manager who provided the information about the availability and quality of ICT units which could support e-commerce project at departmental levels. He stated:

“We have only two modern printers including laser and digital had been installed in the designing and marketing department of the organisation. A laser and a digital printer is used for colour drawings, images and formatting 3D products to meet the needs of customers. In the production and manufacturing plant, the organisation has two computer systems and a laptop to manage inventory, Computer Numerical Control programming and reporting. In the warehouse department, 1KHIMANUSML used very out-of-date ICT tools for communication with the main office” (Field Marketing Manager, 1KHIMANUSML).

In the warehouse and the finance department ICT tools were used mainly to execute and control the financial and administrative functions of the organisation. PESTAL accounting software was used for payroll and to keep records of the financial and inventory transactions of the organisation which doesn’t support any e-commerce activity.

Whereas the respondents from SME (2ISBTICKSML) said that the latest ICT technology presents small businesses with the potential to grow and to find new ways to operate efficiently. However, in the first organisational visits, it was found that, due to the flat company profile (as discussed in the first theme) the firm was not equipped with the latest technology devices that support e-commerce. The issue was further explained by another participant who expounded:

“The commercial operation was run in only three rooms with the necessary ICT devices: there were four telephone lines, of which one line was a direct link to owner-manager and co-owner/manager, while the other three were for the sales and inquiries department. It also had seven old Pentium 4 desktop computers, two being used by owner-manager and Mr co-owner/manager, while the rest were installed in the sales department for booking purposes” (Accounts Officer, 2ISBTICKSML).

Although, the organisation had a centralised server structure with a centralised network connection, and the entire system had been linked with top management, however respondents believed that although the organisation had the basic technological infrastructure necessary to carry out daily commercial activities, it needed to be upgraded to support e-commerce applications.

During visits to another organisation (3ISBMANUMED), it was found that the ICT infrastructure of the company was relatively up-to-date compared to the preceding cases (1KHIMANUSML and 2ISBTICKSML), and that it could fully support e-commerce project. The ICT Manager went further to clarify that:

“The ICT department installs and manages the latest ICT equipment, such as laser printers, fax machines and telephone lines connected to the networking devices. It also has an extranet connection of high quality fast optical fibre along 4G routers with an eight-hour backup battery that helps the organisation connect with other departments and run their commercial operation both in the country and with Europe” (ICT Manager, 3ISBMANUMED).

Through discussions with other participants, including the Owner-manager and Marketing Director from same organisation, it unfolded that their marketing department started working in 2005, and the installing and updating of the technology and communication equipment for e-commerce began in 2016. Thus, the organisation has the latest computer systems equipped with i5 and i7 Intel technology and with the latest operating systems to support any technology change. Somewhat surprisingly however, all the computer systems were – as with 1KHIMANUSML and 2ISBTICKSML – configured for the pirated version of the Windows 10 operating system. According to the ICT Manager:

“As an ICT professional ... I believed that due to inadequate ICT software piracy policies in the country ... many companies, including us, have the option to buy the pirated copies of the operating programmes that are available in the market at affordable prices” (ICT Manager, 3ISBMANUMED).

On the subject of ICT devices, the organisation installed an e-commerce application called Magento 2 online software which supports web browsers and connects securely with the software repository and with PayPal. The main reasons for this were to (i) provide an open platform where community members and business partners could share their views and (ii) enable e-commerce customers in Italy and Pakistan to communicate electronically and conduct transactions online. However, the organisation was not able to use the software to receive PayPal payments in Pakistan because the PayPal service was not available.

The issue with respect to availability and quality of latest ICT infrastructure units, was raised during further discussions with SME participants of 4ISBTRVLSML. The Marketing Assistant explained it further that the organisation is small with an informal department.

“Regarding the firm’s ICT infrastructure, I can say that the systems are not fully developed and need more progress in all departments. The organisation uses obsolete technological equipment that must be updated to support e-commerce” (Marketing Assistant, 4ISBTRVLSML).

Another participant from same organisation agreed with the statement of marketing assistant and further added that:

“In the early stages of the organisation's development, owner-manager started operations from a basic computer connected to a fixed networking connection and a printer to run daily basic business activities” (Finance and Admin Officer, 4ISBTRVLSML).

Since expanding the business and its customer base, the ICT infrastructure now includes four Dell computers with Intel® Core i3-3220 CPU at 3.30 GHz with the Windows 7 operating system and two HP LaserJet P 2035 service printers for commercial use. A fax machine and a telephone line were also available in the departments for communication purposes. However, the management of the organisation believed that their ICT devices had to be updated in order to successfully adopt e-commerce. For example, one of the respondents claimed:

“Although the organisation had the technological devices necessary to execute daily activities, the quality of such ICT devices hampered decisions to adopt the latest online software to support the e-commerce project” (Marketing Assistant, 4ISBTRVLSML).

Based on the general situation of the ICT infrastructure and the commercial background of the organisation, it was assumed that the organisation did not have the ICT devices necessary to adopt e-commerce. ICT devices are only used for the management of financial data and customer data.

On the other hand, the SME 5ISBICTMED is well structured and have created a business-friendly environment with the necessary computer facilities. As participants from 5ISBICTMED noted that they have good quality of ICT infrastructure units available in the departments which supports e-commerce related applications.

“Our departments possess the latest umbrella computing devices, including the latest laptop systems and desktop computers. They are configured with Microsoft licence Windows 10 Pro and Office 365, multifunction HP printers, UAN number along with two direct lines and telecommunication networking systems” (Sales and Support Manager, 5ISBICTMED).

Similarly, during visits to another medium-sized organisation 6KHITRVLMED, one of the respondents (Finance Manager) talked about the entire ICT structure of the organisation, saying that the organisation's ICT devices were relatively new compared to the previous organisations he had worked in.

“The organisation had installed nearly 65 systems including desktops and laptops with Windows 7 and 10 licensed operating systems to support the e-commerce project. Servers had also been found that allow back-office systems to work continuously. In some departments, laser printers with scanners are available to

print and scan official tickets, quotes and generate the travel itinerary of customers. The organisation has more than seven PTCL direct telephone lines and a universal account number associated with five telephone lines. It uses connected computer hardware provided by NAYTEL (an ISP) to explore the latest research and developments in the travel market, including the upgrade of the technological capabilities to support e-commerce and communication (Intranet and extranet)” (Finance Manager, 6KHITRVLMED).

In support of these views, the Owner-manager continued:

“As per to my knowledge, I believe that we have the latest ICT devices to support any technological changes in the organisation, whether it is upgrading Windows formation or online system integration” (Owner-manager, 6KHITRVLMED).

The issue of availability and quality of latest ICT infrastructure was further explained by another owner-manager from 7LHRHTLSML. The data of their organisation show how the quality of the ICT infrastructure affects each organisation's e-commerce strategy. Compared with previous organisations in this study, 7LHRHTLSML does not have sophisticated ICT systems on which to base e-commerce decisions. Although the organisation has the basic communication system to communicate with customers, one of the participants felt that:

“Our ICT infrastructure units needed to be updated before e-commerce could be successfully adopted. The general structure of ICT units includes the telephone lines, fax machines and basic computer systems necessary for the daily operation of the business which does not support an e-commerce applications” (Owner-manager, 7LHRHTLSML).

The Admin Officer went further to clarify that the company had five Pentium 4 computers configured with pirated Microsoft 10 Windows installed on each system. The organisation uses the necessary accounting software, TALLY accounting, mainly controlled by the owner-manager and accounts officer. The accounting software is mainly used for processing accounting, and financial transactions and electronic funds transfer for bank payments made through a local bank which does not have any impact on e-commerce.

“We have an accounting software to keep the financial records. However, without the latest ICT units (hardware and online software), adoption of e-commerce is not possible in the organisation” (Admin Officer, 7LHRHTLSML).

Hence, the factor relating to the latest ICT infrastructure helps SMEs to adopt and maintain e-commerce configuration. However, currently, due to the unavailability of the latest computer systems and effective online software, the adoption of e-commerce is far off for 7LHRHTLSML.

During the interaction of the researcher with different participants at 8LHRMANUMED, it was found that the organisation has the latest ICT equipment to manage its operations. Before 2016, the finance department used only the software ERP financial module to

monitor and record daily financial transactions and generate various financial reports to present to top management for decision-making. While the rest of the departments work on managing information, ICT silos software records and communication. The issue of availability and quality of latest ICT units to enhance e-commerce capabilities was further articulated by the Owner-manager who stated:

“More than 65 computer systems are installed across departments and top management and senior executives also have laptops to deal with technological changes. Pirated Microsoft Windows 7 and 10 are installed in all systems and Microsoft Outlook – part of the Microsoft Office suite – is primarily used for analysis, recording, maintenance and presentation of departmental information to management” (Owner-manager, 8LHRMANUMED).

Another respondent with same views stated:

“The Microsoft Outlook email account is mainly used for communication between business partners, suppliers, external customers and other internal employees of the different departments, via intranet and extranet (internet). In terms of ICT support and maintenance of applications and global technical systems, the firm is technically supported by a local ICT company” (Finance Manager, 8LHRMANUMED).

In brief, during several visits to the organisation and thorough discussions with the participants it was clear that the overall quality and availability of latest ICT units influences the e-commerce adoption strategies in all of the SMEs. However, the quality of some of these ICT infrastructure units were not up to par in smaller SMEs compared to medium-sized firms, and this significantly affects the adoption decision of e-commerce.

7.5.2 Availability and Quality of Internet Connection

In order to communicate with business partners and customers for e-commerce selling activities, a mandatory Internet connection must be available in the organisations of Pakistan. Qualitative data show that SMEs with faster internet connections connected to ICT infrastructure units operate smoothly, and thus have an impact on the organisation's e-commerce activities.

Participants from 1KHIMANUSML believed that the Owner-manager was the only person who used the latest ICT equipment to communicate centrally through the internet: a MAC book, a fax machine and a printer with a latest pirated version of the Windows 10 operating system connected to slow speed of the internet connection. The Finance Officer stated:

“Organisational departments were centralised and had an Intranet and Extranet (internet), connected to the slow speed of the 4 MB PTCL broadband connection with a limited download data packet to communicate with departmental internal employees and external customers” (Finance Officer, 1KHIMANUSML).

The importance of the availability of faster internet connection was supported by the Owner-manager of 2ISBTICKSML. He stated that the organisation used the Galileo, World Span, Sabre and Abacus software for booking purposes and this was run mainly by the sales agents and the owner connected to available internet connection:

“Our computer systems were installed in the sales department for booking purposes and connected with 4 MPB internet broadband connection provided by PTCL (ISP company), which is slower than other companies in the local market” (Accounts Officer, 2ISBTICKSML).

For 3ISBMANUMED, one of the participants recalled this point and explained the possibility of a faster Internet connection to support e-commerce applications within his company. This was expressed in the opinion of the Owner-manager:

“As the organisational department installs and manages the latest ICT equipment, such as laser printers, fax machines and telephone lines, they were connected to the NAYATEL intranet. It also has an extranet connection of high quality fast optical fibre along 4G internet routers with an eight-hour backup battery that helps the organisation connect with other departments and run their commercial operation both in the country and with Europe to communicate with online customers” (Owner-manager, 3ISBMANUMED).

The majority of participating SMEs strongly emphasised the importance of the availability of the internet and its connection speed for the success of e-commerce project. Similarly, a Finance and Admin Officer from 4ISBTRVLSML explained that fax machine and a telephone line connected to 2MB of internet connection were also available in the departments. However, the management of the organisation believed that their internet connection speed had to be updated in order to successfully adopt e-commerce:

“Although the organisation had the technological devices necessary to execute daily activities, the slow speed of PTCL internet hampered decisions to adopt the latest online software to support the e-commerce project” (Finance and Admin Officer, 4ISBTRVLSML).

The Marketing Assistant further claimed that the internal internet system (intranet) was sufficient for the administration to communicate with staff members, but the low speed of the internet affects external communication (extranet). Therefore, they agreed with the views of the Finance and Admin Officer by saying that:

“We have the internet but for mainly internal usage. The ‘slow speed of PTCL internet’ does not give the correct speed due to the distortion of line and the bad weather like heavy rains. However, it satisfies the organisational need to send and receive internal and external emails” (Marketing Assistant, 4ISBTRVLSML).

Another SME 5ISBICTMED possess the latest umbrella computing devices, including the latest laptop systems and desktop computers. They are configured with Microsoft licence Windows 10 Pro and Office 365 connected to the NAYATAL (ISP) fastest internet

connection, multifunction HP printers, UAN number along with two direct lines and telecommunication networking systems including intranet and extranet (internet). The owner explained that the faster Internet connection had introduced a new aspect in the management of e-commerce.

“As an ICT company, we know the importance of the internet connection and speed, which is good for our business to run daily commercial activities and communicate with customers quickly” (Owner-manager, 5ISBICTMED).

Using umbrella ICT devices, all of the 5ISBICTMED participants believed that including the internet, in the sales cycle, support and sales, finance and logistics and warehouse staff are involved. Internet is used for email (intranet and extranet) via the ERP software used for the internal communication of the staff concerning the online order and defined as B2E. Internet mail (extranet) and telephone are also used to better communicate with external customers. Thus, web-based online sales interactions between the organisation and B2B and B2C customers, based on web-based sales techniques, are vigorous using ICT applications such as ERP software, website and internet email. However, traditional methods of selling to the environment impede the full integration of e-commerce capabilities.

For 6KHITRVLMD, the Owner-manager reported having the latest internet connection to support any technological change within the organisation, compared to other medium-sized companies in Pakistan's local business environment. He further revealed that:

“We are using licensed operating systems to configure organisation high-speed internet. It uses connected computer hardware provided by NAYTEL (an ISP) to explore the latest online research and technological developments in the travelling sector, including the upgrade of the technological (hardware and software) capabilities to support e-commerce and communication (Intranet and extranet)” (Owner-manager, 6KHITRVLMD).

This point was reiterated by another participant from 7LHRHTLSML who highlighted the internet technology and its availability to improve e-commerce communication, as well as problems related to the processing of administrative and commercial transactions. During the interviews, the Admin Officer reported that the company had five Pentium 4 computers configured with pirated Microsoft 10 Windows installed on each system and connected to a slow internet speed with a limited data packet provided by PTCL (local ISP) for processing administrative and business transactions. He stated the following:

“I think, the speed of the internet connection is not up to par. We have only one internet connection, connected to all computer systems and slow down due to problems with PTCL internet Service Provider which affects our administrative work” (Admin Officer, 7LHRHTLSML).

In relation to the previous SMEs and to help ICT risk management, the company 8LHRMANUMED has three internet connections provided by three different ISPs. The

Owner-manager explained that globalisation is changing technology patterns and that, as a result, many medium-sized manufacturing firms in Pakistan have adopted the latest ICT units to manage their day-to-day activities effectively. The participants explained that the organisation has a broadband wireless internet connection that connects all departments and their ICT devices so that they can adopt any technology-related project, such as e-commerce. The Finance Manager added that the quality of the company's internet connection to computing devices was excellent in supporting an e-commerce project:

"We have enough IT devices to support the e-commerce project with the availability of the latest ICT equipment connected to a fast wireless internet connection. As a result, the organisation does not suffer from any internet downtime issues" (Finance Manager, 8LHRMANUMED).

However, the Marketing Manager who is involved in the selling process argued:

"I am the only person responsible for relations with the purchasing companies, business partners, suppliers and other customers and allowing the receipt of orders. The only way to receive and authorise the order is to do so by email connected to internet. However, sometimes, if they do not have access to the faster internet, we cannot receive their orders due to break down in communications. They try to send an order by fax or call me. Frankly, these technical obsolete activities only hinder staff efforts, slow staff performance at work and interrupt staff flow" (Marketing Manager, 8LHRMANUMED).

Overall, it could be argued that the availability and quality of a faster internet connection developed relationships between the company's internal communication systems and external suppliers, business partners and especially customers for the success of the e-commerce activities in any organisation. This theme refers to the concept of "ICT" related to the success of e-commerce businesses. However, more importantly, the use of an adequate internet connection to run e-commerce applications should ensure this success for all of the SMEs.

7.6 The Role of Owner-managers

The following theme of the owner-manager role was strongly emphasised by all the SMEs participating in this qualitative study. Interview data revealed that the role of the owner-manager had become an important theme. A clear and strong message from the qualitative interview data showed that the positive or negative role of owner-managers was a barrier for the majority of SMEs. Many participants argued that the influence of leadership characteristics and the role they play in business decisions is detrimental to their business. A theme has divided into another sub-theme named "personal entrepreneurial characteristics" discussed as follow.

7.6.1 Personal Entrepreneurial Characteristics

Personal entrepreneurial characteristics refer to the key characteristics that a successful owner-manager should have to succeed while embracing the latest technologies, including e-commerce. In 1KHIMANUSML, the role of the Owner-manager and personal characteristics are essential themes in the adoption of e-commerce through sophisticated ICT systems, because the Owner-manager controls all the business activities especially financial and ICT related issues. Their Finance Officer stated that, although the organisation had no proper ICT department, related tasks were overseen by the Owner-manager. During visits to the organisation, it was further observed that the Owner-manager had a more significant impact on 1KHIMANUSML and in decision-making when compared to other similar organisations in the local market. This case is proof of an extended individual category of the conceptual framework that shows that owner-manager characteristics are essential to the adoption of e-commerce in the organisation because most decisions are under the control of the owner-manager. The statement is further confirmed by the interview participants, who explained:

“Because of the sole proprietorship, ‘all the decision-making power is in the hands of a single owner’...who manages most of the organisation’s activities” (Field Marketing Manager, 1KHIMANUSML).

During the organisational visits to another SME (2ISBTICKSML), and backed up by the observations and information gathered from various organisational participants, it became clear that the Owner-manager believed in an authoritarian style of business. This point was further reiterated by another participant:

“Our Owner-manager was a Bachelor of Arts and a retired government bank employee as well as being an experienced professional businessman. He was skilled at dealing with customers and had established good relationships with his clients. As a result, he but prefers traditional personal contacts and keeps in touch with his clients over the telephone. He trusts manual work and his technical knowledge of e-commerce is minimal and, therefore, he hesitates to adopt it” (Accounts Officer, 2ISBTICKSML).

The co-owner, on the other hand, holds a Bachelor’s degree in Business and Information Technology, as well as a Master’s degree in Finance. He is a competent man who keeps up to date. He manages ticketing software troubleshooting and other issues related to ICT units. However, he has not adopted any change as his employer advised him to adhere to traditional sales techniques:

“It is not a good time for the Owner-manager to adopt e-commerce in 2ISBTICKSML and that, for the time being, the management’s sole objective is to build customer loyalty through one-to-one contact” (Accounts Officer, 2ISBTICKSML).

Another participant also shared the example of a technological change in the organisation. Last year, a local ICT software company was interested in providing services in terms of biometric assistance, but owner-manager refused to take the services even though the service rate was lower than that of competitors. The Accounts Officer explained the reason for this:

“Owner-manager believed that ‘technology systems never bring any change to the organisation’, and if adopted, must provide ‘training to staff members’ to work on new technology systems” (Co-owner/manager, 2ISBTICKSML).

As discussed earlier, owner-managers plays a crucial role in the conceptual framework used to extend the TOE model that can positively or negatively impact the adoption of e-commerce at SMEs. The participants from 3ISBMANUMED revealed that the principal decision-maker of the organisation was the Owner-manager, and that his decisions affect all the organisation's activities. Specifically relevant for e-commerce development, he controls the financial and implementation decisions relating to the upgrading of ICT equipment within the organisation. He also drives adoption decisions for e-commerce software and the installation of the latest equipment, from the planning phase through to the actual upgrading of the system. The Owner-manager supported the organisation at all levels through effective communication regarding the adoption of e-commerce. According to ICT manager and Marketing Director:

“Our Owner-manager is very ‘supportive and confident’ about the adoption of e-commerce in the organisation. He is taking e-commerce initiatives and ‘motivating his staff and executives to work more on e-commerce tools via the internet’ ... which is helping to increase e-business efficiency for the company” (ICT Manager and Marketing Director, 3ISBMANUMED).

The Owner-manager agreed with this statement:

“I acknowledge the statement that senior management and other staff members in all departments should work on the latest ICT devices that support the e-commerce project. If I did not support this position, we would have problems in the future ...” (Owner-manager, 3ISBMANUMED).

Participants from company 4ISBTRVLSML also agreed with other participating SMEs that the organisation will not achieve its e-commerce objectives until the Owner-manager of the company has developed the technology in the company, and provides its employees with training in computer skills. This will only happen if the Owner-manager himself is enthusiastic about the adoption of e-commerce. However, during the 4ISBTRVLSML analysis, one of the participants explained that:

“The Owner-manager only has a high school diploma and runs the family business using traditional methods. He carries out most of the company’s commercial activities using an old style of sales techniques that includes personal face-to-face

meetings, telephone communications and reliance on digital and print advertising to capture the market. Owner-manager does not seem to be aware of the potential benefits of e-commerce for the organisation, for example, how his company could expand by using e-commerce technology as an online tool to efficiently communicate with new and existing customers throughout the country” (Finance and Admin Officer, 4ISBTRVLSML).

In further discussions with the Marketing Assistant from the same company, they consistently mentioned the role of Owner-manager in blocking the adoption of the technology:

“I think Owner-manager really have no idea that with the online e-commerce tool we can save our time when dealing and communicating with customers. The big problem, which I think is the interest of technology ... that is not found in Owner-manager” (Marketing Assistant, 4ISBTRVLSML).

The 4ISBTRVLSML case analysis shows that the Owner-manager’s lack of enthusiasm strongly influences decisions within the organisation and was considered a significant obstacle to the successful adoption of e-commerce.

In many organisations, the owner is a financier and only concerned with the return on investment as a profit. However, during this study various participants was found that 5ISBICTMED had a different scenario where the owner works as the Chief Executive Officer. He gained his Bachelor of Computer Science at a British university, is well versed in different work styles and has years of experience in leading a successful business. As a result, he is aware of the importance of e-commerce and its potential benefits. The Finance Manager said that the Owner-manager proactively adopts technological changes, such as e-commerce, which will generate more revenue in future. To support these views, another participant explained the Owner-manager’s role:

“Owner-manager is enthusiastic and has innovative technology ideas to attract more customers with promotions, loyalty points, discount coupons and free online delivery ... which are the critical tools for acquiring new potential customers and to ensure repeat sales of loyal customers online” (Sales and Support Manager, 5ISBICTMED).

The Finance Manager also acknowledged the Owner-manager’s role and the importance of e-commerce in the organisation, saying that he had always encouraged staff members to work more on e-commerce tools that would help build technological capacity:

“Our Owner-manager has always ‘encouraged his staff in all departments to work more on technological devices’ to communicate with customers instead of relying on ‘traditional sales methods and scripts’. It also encouraged us to work more online, which is another critical aspect of the adoption of e-commerce” (Finance Manager, 5ISBICTMED).

Similarly in another organisation, 6KHITRVLMED, during the interview phases participants observed that their Owner-manager is a very experienced person as he ran a family

business and knew all the strategies to promote the business through traditional and digital sales methods. The Owner-manager is the organisation's Chief Operating Officer and responsible for the day-to-day operations of the company. The ICT Manager continued by saying that:

“Owner-manager has a Bachelor's degree and that he also has an enthusiastic personality. He is still has a keen interest in the adoption of e-commerce project and understands the essential role played by e-commerce at 6KHITRVL MED” (ICT Manager, 6KHITRVL MED).

The role of the Owner-manager in 6KHITRVL MED has a positive impact on the adoption of e-commerce similar to that of previous medium-sized businesses.

For company 7LHRHTLSML, participants expounded that the Owner-manager is the Chief Executive Officer of the organisation and the Head of the Administrative and Financial Department. He performs administrative and financial tasks with other senior departmental managers and handles most of the day-to-day financial matters. Participants further observed that:

“Owner-manager is also responsible for day-to-day operational tasks such as preparing and coordinating staff members to provide better hospitality to guests staying at the hotel. He makes most of the corporate and Individual business owners' reservations”. (Admin Officer, 7LHRHTLSML)

With regard to his professional experience, another participant explained that the Owner-manager has enough experience in the hospitality industry to manage the necessary operations of the organisation and does not need to do much to prove his credibility. During several visits to the organisation, the Accounts Officer further confirmed that owner-manager's mode of operation is mainly based on traditional methods, combining “word of mouth”, telephone communications and, to a certain extent, the continued use of electronic mail via the internet without adaption of online software and communication devices.

“The owner is not yet familiar with computer systems, current e-commerce databases and modern IT means to do business ... he is not fully computer trained to use such devices that support any technology such as e-commerce and relying on traditional selling methods” (Accounts Officer, 7LHRHTLSML).

During the interactions with different participants of the organisation, it was revealed that the Owner-manager had a satisfactory perception of what e-commerce entails, even if they encountered several difficulties.

To summarise the role of the Owner-manager and personal business characteristics' themes, 8LHRMANUMED participants stated that the positive role played by the Owner-manager was very important to the success of SME e-commerce. At 8LHRMANUMED, the new Owner-manager – a graduate from abroad and with experience in collaborating with

local and international automotive multinationals – took the initiative of digitising the organisation and expanding local commerce through ICT. One of the participants added that the Owner-manager realised that to become a market leader, it is necessary to embrace technological change such as e-commerce, at the international level. The Owner-manager motivated the employees and provided the opportunity to bring technology ideas to automate the company's business processes. A different participant also spoke about the support given by the Owner-manager to his employees to switch to online systems:

“Owner-manager has the leadership and business skills needed to capture the attention of his senior management. It supports the idea of e-commerce and takes the initiative ... as well as training in new internet applications and new online systems” (Marketing Manager, 8LHRMANUMED).

Based on the owner-manager role theme, it has been found that, if it has more effective entrepreneurial personal characteristics, it is more likely to make effective decisions to adopt e-commerce and seek opportunities for improved business performance.

7.7 Factors Affecting E-commerce Adoption

In addition to the previous themes and sub-themes, this section provides information on various factors that influence the successful adoption of e-commerce in different SMEs based on the TOE model (see Table 17). Similar factors within the eight SMEs are summarised in the following table (down). Four themes of the TOE (technological contextual factor, organisational contextual factors, organisational contextual factors and extended individual contextual factors) were divided into several sub-themes and parts and were named as factors. These are also discussed in more detail next, starting with the technological contextual factors.

Table 17: Common Factors Affecting E-commerce Adoption Based on the Model of TOE Framework

Themes	Sub-themes	Impact
1. Technological Contextual Factors		
	Availability and quality of latest ICT infrastructure units	Availability of the latest ICT infrastructure devices (hardware and software) to support e-commerce
	National e-readiness	Level of ICT facilities and internet connectivity infrastructure throughout the country

	The speed of the internet	The slow speed of the internet affecting internal and external communication
	Power outages	Shortage of electricity prevents ICT systems from working efficiently
	Online payment security and data privacy mechanism	Appropriate and secure e-payment methods to transact online for potential customers
2. Organisational Contextual Factors	Sub-themes	Impact
	Size and structure of the organisation	Smaller or medium size and structure of the organisation affected the e-commerce strategy
	Inadequate financial and skilled HR	Influence the e-commerce adoption decision due to a lack of skilled workers capable of developing a website and maintaining systems
	Website availability and ordering payment facility	Prevents the SME owner-manager's from developing a website and receiving orders online and e-transactions

Table 17 (cont.): Common Factors Affecting E-commerce Adoption Based on the Model of TOE Framework

3. Environmental Contextual Factors	Sub-themes	Impact
	Traditional selling methods	Client preference for traditional based selling method (face to face contact and personal contacts and relationship-based selling)
	Lack of consumer e-commerce trust	Lack of consumer trust in credit cards and online purchasing methods
	Consumer preference for cash payments on delivery	Preference for cash payments paid directly to the organisation
	Technological awareness and education in society	Technological awareness and education influence the decisions for

		owner-managers to adopt and run e-commerce application
4. Extended Individual Contextual Factors	Sub-themes	Impact
	Owner-managers and management characteristics	Owner-manager enthusiastic towards e-commerce technology adoption
		Owner-manager support for e-commerce
		Senior executives (older employees) reluctant to adopt e-commerce technology
		E-commerce awareness and computer literacy (ICT knowledge) among senior executives
		E-commerce training for senior executives in some of the departments

7.7.1 Technological Contextual Factors

Technological contexts as a theme refer to the adoption of innovations using different ICT units and other related network technologies in the SME environment (Teo & Pian, 2004). This technological context represents the pool of technologies that can be adopted by an organisation (Scupola, 2009). These can be both the technologies available on the market and the current ICT equipment of an organisation. Table 17 presented the technological context factors based on the TOE model. The technological context has highlighted several factors (sub-themes) that affect the adoption of e-commerce by SMEs in Pakistan such as: availability and quality of latest ICT infrastructure units, national e-readiness, the speed of the internet, power outages and online payment security and data privacy mechanism. The following section discusses each of the technological factors sub-themes that influence SMEs when adopting e-commerce technologies in Pakistan.

7.7.1.1 Availability and Quality of the Latest ICT Infrastructure Units

The availability and quality of the latest ICT infrastructure (hardware and software) units in the SMEs has become an important theme for the success of e-commerce in SMEs in Pakistan. The importance of this topic was strongly emphasised in the qualitative data of the interviews and was a recurrent topic among the various SMEs participating in this study.

Predominantly, participants indicated that one of the major barriers to the successful adoption of e-commerce as a business strategy in their business processes is the availability of the latest ICT infrastructure units (hardware and software) supporting various e-commerce applications. Participants further argued that, although they had the basic infrastructure needed to carry out the necessary activities, the quality of these units had a considerable impact on the successful integration of e-commerce services.

In the case of 1KHIMANUSML, participants of the organisation believed that overall ICT infrastructure units negatively affected the e-commerce strategy, as organisation has very old systems to perform its commercial activities. The strategy is, in fact, not fully developed, as it fails to use information and communication technology units effectively. One of the participants believed that their organisational ICT infrastructure needed to be updated to support e-commerce and that very out-of-date ICT tools were used only for communication with the head office. The Owner-manager further explained this:

“The organisation is not fully developed in ICT related devices, therefore, as owner-manager...I am not interested in updating the networking communication channel within the organisation through the installation of the latest ICT networking devices” (Owner-manager, 1KHIMANUSML).

Inadequate infrastructure further affected the manufacturing and delivery department was the bulk quantity orders and their on-time delivery, which is inadequate in the organisation. The manufacturing department does not have adequate ordering and delivering systems to track the orders. Sometimes, therefore, delivery gets delayed and customers complain. The Finance Officer stated:

“E-commerce orders contain bulk quantity orders and require faster delivery methods because according to my understanding ... online customers usually placed orders online to save time. However, in 1KHIMANUSML this on-time delivery process is not possible due to unavailability of delivery tracking systems” (Finance Officer, 1KHIMANUSML).

Company 2ISBTICKSML has a similar situation as 1KHIMANUSML in terms of availability and quality of latest ICT infrastructure units to support e-commerce in that the firm is not equipped with the latest technology devices that support e-commerce. In addition, the commercial operation is run in only three rooms with the necessary ICT devices. Participants believed that the organisation used the Galileo, World Span, Sabre and Abacus software for booking purposes and this was run mainly by the sales agents and the Owner-manager. Although the organisation had the basic technological infrastructure necessary to carry out daily commercial activities, it needed to be upgraded to support e-commerce. The Owner-manager further explained why he did not have the latest ICT infrastructure that supports e-commerce:

“We are running a small business and we do not have the capability for the adoption of most expensive ICT umbrella devices, especially for e-commerce, which involves the use of the latest computers, including hardware and software networks to communicate, store and manage the information of the request in a limited time” (Owner-manager, 2ISBTICKSML).

Organisation 3ISBMANUMED, on the other hand, has sophisticated ICT infrastructure units. Participants found that the ICT infrastructure of the company was relatively up-to-date compared to the other organisations in the local business market and that it could fully support e-commerce. 3ISBMANUMED was a relatively new company in e-commerce but had the technological capacity to meet the objectives of its commercial e-commerce strategy.

“In 1997, we started to set up the necessary computer base with the ‘necessary hardware’. In 2005, we adopted technological innovation very early and installed TYPO 3 technology to manage the business process after the continuous efforts of our ICT professionals and build a small ICT base... A foundation that will continue to grow over time. An ‘advanced ICT infrastructure’ was launched as an integrated e-commerce solution...which means that we can connect online, communicate with customers and partners, search for products and services and receive orders and payments without problems ...” (Owner-manager and ICT Manager, 3ISBMANUMED).

The analysis of this case showed that the organisation has state-of-the-art computer equipment compatible with e-commerce and is developing more.

However, the participants from company 4ISBTRVLSML said that the systems are not fully developed and need more progress in all the departments because the organisation uses obsolete technological equipment that must be updated to support e-commerce. The Finance and Admin Officer agreed with these views and stated:

“We use standard generic software to execute our daily activities. Based on the general situation of the ICT infrastructure and the commercial background of the organisation, I believed that at the moment the organisation did not have the latest ICT devices necessary to adopt e-commerce applications” (Finance and Admin Officer, 4ISBTRVLSML).

The organisation uses limited technology tools, such as the internet and email, to communicate with business customers. Hence, ICT devices are only used for the management of financial data and customer data and email connected to the internet for communication purposes.

Exploring the interview data further provided insights to why the factors related to the ICT infrastructure was very important for the success of SMEs in Pakistan. These were highlighted by some of the participants from organisation 5ISBICTMED. The Sales and Support manager said that:

“They have a sophisticated ICT system to support e-commerce which was a crucial element for the fully adoption of e-commerce in the business. Most of the departments possess the latest umbrella computing devices, including the latest laptop systems and desktop computers” (Sales and Support Manager, 5ISBICTMED).

The Finance Manager from same SME also confirmed that the organisation had good telecommunications systems that support any new technology project for the effective execution of online commercial activities. He stated:

“The organisation has advanced equipment to support technological developments, such as e-commerce. The organisation has purchased the latest software to run its online business applications. We believe that our company is the first company in the sector to embrace change technology when upgrading old systems to new ones” (Finance Manager, 5ISBICTMED).

The Owner-manager from another SME 6KHITRVL MED confirmed that the company also had good ICT telecommunications support:

“Our existing systems are up-to-date and able to add e-commerce to the organisation” (Owner-manager, 6KHITRVL MED).

While observing the overall ICT capacity of the organisation, it was also found that finance, sales and ticketing had installed the Sabre Power suite and Galileo software in their computer systems to control financial activities and sell the products and services electronically. Through the Sabre Power suite, the finance department handles accounting and finance queries; from bill generation to managing the organisation's balance sheets and accounts payable and receivable.

“We have updated the manual accounting system for the Sabre software so that our finance department starts working on online software and generates online reports” (ICT Manager, 6KHITRVL MED).

Galileo software, on the other hand, is primarily used to book hotel tickets and packages, keep booking records, generate and print travel plans, and finalise bookings. This software also connects to the financial software (Sabre) via the intranet to generate the final ticket invoices for the corporate clients. These are then sent directly by email or through the fax machine. One of the respondents said that:

“Our online ticketing and finance software are interconnected to generate the tickets and keep customer financial records that are used for audit purposes” (Finance Manager, 6KHITRVL MED).

The analysis of this case shows that the organisation uses the latest ICT devices to run its financial management and sales software via the internet. Similarly, another owner-manager from 8LHRMANUMED concurred with these views and indicated that the organisation has latest ICT infrastructure units to manage its operations.

“8LHRMANUMED's e-commerce adoption strategy has focused primarily on its private and public sector business partners. From the data, it was found that some recent ICT systems would support e-commerce projects in the future, but for the moment, all systems are expected to improve the business relationship between 8LHRMANUMED and its trading partners, including GoP, its suppliers and its private customers in the local business environment” (Owner-manager, 8LHRMANUMED).

However, other participants argued that the quality of overall ICT infrastructure was one of the factors that had been observed as an obstacle in the fully adoption of e-commerce in the organisation. In some departments, there is still no adequate electronic infrastructure to transform 8LHRMANUMED into an extended organisation. Therefore, the Marketing Manager felt that:

“In order to support the departments of the company, it was necessary to create an internal ICT database linking all departments seamlessly” (Marketing Manager, 8LHRMANUMED).

8LHRMANUMED's e-commerce adoption strategy has focused primarily on its private and public sector business partners. From the data, it was found that some recent ICT systems would support e-commerce projects in the future, but for the moment, all systems are expected to improve the business relationship between 8LHRMANUMED and its trading partners, including GoP, its suppliers and its private customers in the local business environment.

Participants from 7LHRHTLSML had similar views in terms of ICT infrastructure units and said that their firm was relatively new in the country, as a result does not have sophisticated ICT systems on which to base e-commerce decisions.

“Therefore, our contemporary computer systems ‘did not help the e-commerce project software. The organisation uses the necessary accounting software, TALLY accounting, mainly controlled by the top management. The accounting software is mainly used for processing accounting, and financial transactions and electronic funds transfer for bank payments made through a local bank” (Owner-manager, 7LHRHTLSML).

The participants of this case further provides information that without the latest ICT units, adoption of e-commerce is not possible in the organisation. The latest ICT infrastructure helps SMEs to adopt and maintain e-commerce configuration. However, due to the unavailability of the latest ICT units, the adoption of e-commerce is far off for the organisation.

7.7.1.2 National E-readiness

Another factor cited by all SME participants was the general state and preparation of the country's infrastructure for the adoption of the latest technologies, including e-commerce and the availability of good quality hardware and software. Interviewees indicated that one

of the main obstacles to the success of their businesses is the overall quality of the country's infrastructure. All informants pointed out that the poor quality of the infrastructure was an obstacle to the adoption of advanced technologies such as e-commerce in Pakistan.

Participants said that the software market in Pakistan is very versatile and dynamic. However, the main problem lies in the availability of good quality hardware and software compatible with e-commerce technology developments in the organisations. One of the respondents further highlighted that:

“If e-commerce hardware and software were available in the country, buying them was expensive and they did not have an ICT department to manage them” (Owner-manager, 2ISBTICKSML).

The Co-owner/manager from same company went on to explain that:

“Most software and infrastructure hardware of excellent quality is not profitable in the country. If we find inexpensive hardware, but programming is expensive and requires ICT staff to install new software, update it and then run it on an ongoing basis, which is a significant barrier to the successful adoption of e-commerce in the organisation” (Co-owner/manager, 2ISBTICKSML).

The other Owner-manager of the same SME agreed with these views and cited that the availability of cheap ICT hardware compatible with e-commerce software was a significant factor for majority of SMEs in Pakistan. In the qualitative interview data, it was mentioned that the latest technology devices were expensive in Pakistan, especially for SMEs. The latest technologies in ICT devices that support the e-commerce project in the organisations and online communication with customers and business partners were not easily accessible in Pakistan. Therefore, the business management approaches of many SMEs were traditional and limited to only a few clients.

For 4ISBTRVLSML, participants stated that almost every business in the world uses modern tools to transform their small business, but unfortunately, in Pakistan the situation is different.

“Most small organisations especially in rural areas and small towns, including 4ISBTRVLSML, are faced with ‘the lack of physical and technical infrastructure and ICT facilities supporting e-commerce because of the costly ICT equipment in the country which is not affordable’ ... small organisations find it difficult to effectively implement e-commerce in business” (Marketing Assistant, 4ISBTRVLSML).

Another factor cited by all participants was the inadequate electronic payment methods in the country. Individuals and business organisations needed to make and receive payments daily. Therefore, the local banks must provide an adequate electronic payment mechanism to support e-commerce business – mainly for SMEs – and accept online transactions. The qualitative data from this study showed that electronic payments often increase as a

challenge for the organisation trying to adopt e-commerce. One owner-manager confirmed that:

“Sometimes, our corporate clients are interested in making digital payments with debit/credit cards by phone, but we do not have any facility (card swiping machine) available in the organisation to accept payments ...” (Owner-manager, 4ISBTRVLSML).

A qualitative data from same organisation further shows that the country's environmental conditions also affect the organisation's ability to bring about technological changes such as e-commerce. In northern areas of Pakistan, these conditions – as was confirmed by all participants – include landslides, floods and torrential rains. One owner-manager said:

“The landslides caused by floods in various parts of the north disrupted the speed of the internet and disturbed communication channels between trading partners and 4ISBTRVLSML. The heavy rains had also interrupted the supply of electricity in the northern areas, disrupting the ICT infrastructure. More often than not, they continued, the power was off which prevented the organisation from developing an e-commerce environment” (Owner-manager, 4ISBTRVLSML).

For company 5ISBICTMED, participants believed that their customers faced issues regarding confirmation of the orders. Many customers also call the organisation to inquire about whether the organisation had received a confirmed order. Owner-manager said that many customers find it difficult to track their orders online in Pakistan because of the inadequate tracking system of the shipping company TCS, a distribution partner of 5ISBICTMED. One owner-manager added:

“TCS is our delivery partner and delivers final order products to customers ... our delivery system is connected to a TCS tracking system that is not good enough to provide delivery information to the customer” (Owner-manager, 5ISBICTMED).

The Sales and Support Manager further confirmed that trading partners such as TCS had difficulty with e-commerce orders, due to a lack of technical readiness on the part of trading partners, which affected the organisation's decision on e-commerce.

“TCS online delivery tracking systems sometimes create a technical problem ... we called so many times and asked about the delivery status of our customer's order, but they always said that it was not their end, but their technical failure occurred due to failures in the lines of PTA ... TCS online tracking devices connected to internet systems stopped working” (Sales and Support Manager, 5ISBICTMED).

The telecommunications infrastructure in the country is provided by the PTA, a single provider of landlines and other ISPs, and is not good enough to support companies in Pakistan. Therefore, many organisations face severe technical problems due to the inadequate country's and ISPs technical infrastructure. The Finance Manager reported that although the organisation had a state-of-the-art ICT infrastructure, their business partners were not yet fully developed to use technological devices and accept changes due to the

PTA's monopoly, as the quality and speed of internet was not efficient in many parts of the country, particularly in rural areas. He gave an example:

"TCS is our delivery partner; we advise to update the delivery tracking system so that our customers can track their orders. TCS management said that we configured our current systems to meet the demands of our partners ... however, due to the PTA's poor networking lines of telecommunications, we found technical errors daily that prevented our tracking systems from functioning correctly" (Finance Manager, 5ISBICTMED).

The firm also had issues with its trading partners. Many trading partners – including suppliers – are not yet ready to accept technological changes. This prevents the organisation from using online systems in its production and operations department for communication:

"For the functioning and efficiency of the production and operating mechanism, the 'electronic preparation' aspect of trading partners affects the organisation to use online systems" (Owner-manager, 8LHRMANUMED).

7.7.1.3 The Speed of the Internet

In many qualitative interviews various participants further reported difficulties in accessing the internet due to the insufficient capacity of the PTCL broadband network in Pakistan. E-commerce technologies requires faster and high quality internet performance to run various e-commerce applications. In Pakistan, PTCL is the country's leading low-budget internet service provider, but its services lack quality and speed. Technical problems occurred daily in the organisations, and the PTCL customer service was worse than ever. One owner-manager explained that:

"Other internet service providers are expensive. Even if they provide better and more timely after-sales services, they charge much more than standard rates and so are not affordable for 2ISBTICKSML" (Owner-manager, 2ISBTICKSML).

Although the participants elaborated that their organisations could meet its internal internet needs, the quality of the infrastructure at the time did not support the capacity and speed of the internet for e-commerce. It was noted that high speed internet is essential for the performance of e-commerce technologies and online communication.

ICT manager from 3ISBMANUMED felt that the quality of the internet in the country was insufficient for both residential customers and businesses to communicate electronically through internet, and the Marketing Director further asserted that:

"With the 'current ICT infrastructure, it is difficult for the company, other market companies and residential customers to connect and transact online for e-commerce'. We have no idea 'how we can communicate with the potential customers' ... this problem 'discourages many Pakistani companies from

participating in e-commerce but encourages many foreign companies' (who are probably interested in investing e-commerce) in the future" (Marketing Director, 3ISBMANUMED).

The Finance and Admin Officer from 4ISBTRVLSML explained that the speed of the internet was inadequate in Pakistan. The country's internet requirements and available infrastructure did not support the capacity of e-commerce because most of the country's population did not connect to the internet, although the use of mobile devices was increasing among younger generations to use social networks. He further stated that:

"Devices and technologies related to e-commerce work with the high-quality speed of the internet, but in Pakistan, the speed of telecommunications and its capacity that e-commerce needed were inadequate..." (Finance and Admin Officer, 4ISBTRVLSML).

All of the participants at 5ISBICTMED confirmed that internet connectivity is a crucial issue influencing the adoption and successful implementation of e-commerce and such internet problems were seen as being part of an internal or external national infrastructure. Due to considerable online traffic on a server, the speed of the internet sometimes slows down the receipt of online orders and the successful execution of e-commerce software. One of the respondents agreed that a problem exists with the fibre optic cable that connects the organisation to the ISP and that due to unknown technical issues on the part of the ISP the speed of the internet service is often slow. He further explained that individual users and users of multiple ISPs across the country have problems with internet speed when the PTCL carries out maintenance operations several times each month:

"The PTCL operated the cable network system in Pakistan ... which was also responsible for repairing the defective lines in the country. However, 'because of the monopoly of PTCL on communication and internet services resulted in high cost and poor level of internet connections'. These have proven to be a critical barrier for many Pakistani residents and businesses in terms of using e-commerce" (Finance Manager, 5ISBICTMED).

As Pakistan is a developing country, the quality of the speed of the internet is not up to par, as another participant from 6KHITRVLMED has confirmed during qualitative interviews. Slow internet speed as a barrier has also been found in previous organisations in this study. As high-speed internet is not consistent, the adoption of e-commerce is offset by manual or traditional methods. The organisation 6KHITRVLMED and ISPs rely on PTCL bandwidth and in the event of a technical breakdown in their system the software stop working. Therefore, the organisation cannot rely solely on the internet. The Owner-manager said that this was one of the most critical factors which cannot be ignored in the process of adopting e-commerce as a technology project in any company.

"We are having problems with the internet on our computers running the reservation software's, where it is logging in and out, again and again, this could be due to network issues on the ISP end ..." (Owner-manager, 6KHITRVL MED).

7.7.1.4 Power Outages

Power outages as a critical factor, including power shortages and load shedding, were at the forefront of the concerns of SME participants. All interview participants pointed out that the technological devices that support the e-commerce process are powered by electricity and is references to the sub-theme power outages. Thus, in Pakistan the general electricity shortage is another barrier to transforming the traditional commercial structure into e-commerce. Load shedding – one of Pakistan's severest problems – affects many sectors of the country's economy. One owner-manager from 2ISBTICKSML said that Pakistan's energy infrastructure is inadequately developed to generate enough electricity for consumers; it is underdeveloped and poorly managed. The Accounts Officer and Co-owner/manager confirmed these views and explained that:

"Currently, the country is facing a serious 'energy crisis'. During power outages, most neighbourhoods in the city are not fully electrified, and 'it is critical to adopt any technology that requires power'. Its gravity can be measured by the fact that in most parts of Pakistan, a load shedding of six to 12 hours and alternative power supply tools are costly for the organisation ..." (Accounts Officer and Co-owner/manager, 2ISBTICKSML).

During telephone and face-to-face interviews, all participants provided information on the barriers to the success of the e-commerce project across the organisation's departments. One of the main barriers to adopting and effectively managing the implementation of the e-commerce project – particularly during the implementation phase – was the problem of frequent electricity blackouts. Similarly, all participants at 3ISBMANUMED felt that the severe electricity crisis has hampered the adoption of e-commerce and sometimes interrupted various technological projects. The ICT Manager and Marketing Director from the same company explained that:

"Pakistan is facing a 'serious electricity problem' that is holding back the growth of many companies, mainly SMEs, which are running their business on an ongoing basis. Therefore, we believe that one of the main obstacles to the successful adoption of e-commerce technologies in all departments of the organisation is the 'electricity shortage' in the country. Due to 'power breakdowns' ... the company's entire electrical systems have stopped functioning, and we are 'no longer able to perform a business related to ICT devices' affecting daily business operations..." (ICT Manager and Marketing Director, 3ISBMANUMED).

For SME 5ISBICTMED, participants agreed that ICT devices require continuous power to operate the electrical equipment necessary to the e-commerce process. Most of the neighbouring countries – like Nepal, India and Bangladesh – also face a problem of energy

shortage. However, participant believes that Pakistan's is probably the worst due to the country's inadequate energy infrastructure, inefficiency and poor management.

"I am fed up with the power outage that is hurting the process of product manufacturing in the plant department. Finally, I had to buy this run-down diesel generator to run some of the computer equipment at the head office to communicate with other departments and meet our daily business needs. However ... sometimes when the generator set ceased to operate due to technical issues, the entire ICT configuration also ceased, impacting the e-commerce ordering process at head office" (Owner-manager, 5ISBICTMED).

The Finance Manager from same organisation concurred with these views and further explained that organisation uses ERP software to manage its activities and support e-commerce orders. During a power outage, the ERP ordering system stops functioning. This affects the day-to-day operations of the organisation – mainly logistics and warehouses – as well as the sales and marketing department. Thus, the lack of electricity was the main problem in Pakistan. Although the organisation had a backup device to run the systems, however, it must be recharged after prolonged use and this itself requires power. If the lack of electricity exceeds the expected duration, then backup systems also stop working, which affects the web ordering, ERP process and testing the products. The Sales and Support Manager agreed, saying that the electricity crisis was one of the major problems facing many businesses and individuals across the country.

"5ISBICTMED is an ICT company that provides technology devices to customers. Before selling, we must test the products in front of our customers. During the test phase, the power supply is sometimes cut off due to load shedding, and we use alternative electrical devices to run the process continuously. However, we cannot rely on alternative devices for a longer time ..." (Sales and Support Manager, 5ISBICTMED).

The majority of organisations in Pakistan depend on electricity. Load shedding obviously seriously affects a firm's daily activities. While large organisations can easily afford the use of alternative devices such as UPS or gasoline generators for electricity, SMEs cannot afford to run the systems on alternative devices for long hours. To successfully adopt e-commerce, continuous power is required to support the hardware tools necessary for e-commerce software. In Pakistan, however, the Marketing Assistant from 4ISBTRVLSML said:

"We do not have a continuous power due to its scarcity that affects the general commercial performance of the organisation, the increase in the cost to use alternative devices and problem in dealing with customers. For example, if I communicated with a corporate customer through emails, once the power was cut off, the communication stopped ... and I must wait until the electricity returns, and we do not have any alternative device to run the computers ... so what is the point of adopting e-commerce and depending entirely on it?" (Marketing Assistant, 4ISBTRVLSML).

6KHITRVL MED has also encountered electricity problems in its adoption of e-commerce. Since the organisation handles the sale of air tickets and vacation packages through electronic software such as Galileo and Sabre, continued power is required to run the software on ICT hardware including computers and high speed of internet broadband. However, their Owner-manager explained that the booking software has a calendar that is synced with the airlines and their flight schedules. The sales agent provides the customer with the ticket price and other travelling details by issuing a travel itinerary. If the customer agrees on the tariff and travel plan provided then, using software, the final ticket is generated for the customer. However, the major problem when using the software is electricity blackouts. If the internet fails due to a power failure, the software stops working. Each travel agent has a username and password to work on the software. During a power outage the login procedure gets locked, and the agent must call the ICT support centre to have it released. The ICT Manager stated:

“The electricity blackout is the main problem of the finance and marketing departments. Software and hardware frequently stop working in the absence of electricity, and sometimes we have to wait for it to come back, delaying the booking process for customers. Thus, affecting the commercial interactions between all stakeholders” (ICT Manager, 6KHITRVL MED).

7.7.1.5 Online Payment Security and Data Privacy Mechanism

The security of online payments and the confidentiality of consumer data sometimes create barriers for the organisations to receive e-commerce transactions in Pakistan. Concerning online digital banking, the management of the medium-sized organisations has encountered several problems when receiving online payments through its website, as found during the analysis of the elements of the site. Online customers complain about the payment mechanism available on the organisation's website to secure the information. Twice a week, management receives emails from customers complaining about online payment methods that are not sufficiently secure and appropriate for payment and order confirmation. One of the managers indicated that:

“The online payment system has issues due to technical infrastructure errors on the part of the bank: when customers place the order online they should receive a confirmation email stating that the order has been placed and payment has been received (if the customer had paid by digital methods), but sometimes – due to a technical issue – the organisation receives the order but never receives payment confirmation from the customer” (ICT Manager, 3ISBMANUMED).

The Owner-manager from same organisation also explained that:

“There is ‘no adequate and secure online payment communication mechanism’ available between banks and online companies to receive online payments in a ‘secure and timely manner’, as banks sometimes reject online transactions with a

credit card due to 'insufficient funds in the account of the consumer or transactions rejected due to the failure of the internet' ... and the payment has not been confirmed. Once the bank rejected the payment, 'it did not inform us, not the customer, but a request made online', which creates confusion between the organisation and the consumer ..." (Owner-manager, 3ISBMANUMED).

Participants of same organisation further argued that in Pakistan, financial systems are mainly either cash or the emerging electronic system. However, most consumers have never trusted e-commerce transactions because they consider that online transactions through digital methods are not secure enough in terms of payment confirmation. One participant thought that this was due to inferior technology:

"The e-payment confirmation mechanism depends on the bank's infrastructure, which is discouraging. For example, when the customer placed the order online, although he/she placed the order, he/she encountered several payment issues due to a system outage and did not work well. Sometimes the client would call us to confirm whether we had received the order or not ... when we discussed the problem with the bank ... the officials said that it was not from their end but from the electronic network, which is operated by the PTA" (Marketing Director, 3ISBMANUMED).

Therefore, participants confirmed in the qualitative interviews that due to the lack of a reliable online payment mechanism to secure the customer data and privacy, the organisation has given online customers the option of paying at the store after placing the order, or by paying cash on delivery.

For 1KHIMANUSML, the Owner-manager's feelings towards introducing online payment methods in the organisation were widely shared with other managers of 1KHIMANUSML. In some of the interviews, they stated that they felt that e-commerce in the twenty-first century was still shunned by society because of the unavailability of secure electronic payment methods. This statement is further confirmed by the Finance Officer:

"Proper electronic payment methods with 'secure systems' help the organisation to connect with customers electronically. However, at this stage, most of the 'consumers do not have full access to credit/debit card or have even bank accounts to make online purchases securely' which can complicate the process of electronic shopping ..." (Finance Officer, 1KHIMANUSML).

The Finance Manager from another organisation (5ISBICTMED) also agreed; explaining, moreover, that potential online customers were concerned that information about banking cards (credit/debit) related to card numbers and their personal details (such as date of birth, address and workplace information) could be stolen or hacked while transacting through an e-commerce channel.

"In Pakistan, there was no specific law preventing hackers from seeking personal and banking information about customers, not just in online transactions but in the entire commercial information system" (Finance Manager, 5ISBICTMED).

Therefore, the lack of legal assurance in relation to website security makes the potential online client less confident in using e-commerce because they do not know how to protect themselves when using the company's website in Pakistan.

7.7.2 Organisational Contextual Factors

The organisational context represents the internal factors of an organisation that influence the adoption and implementation of innovations (Tornatzky & Fleischer, 1990). Given its vital importance, participants indicated that organisational contextual factors were an important theme for the successful adoption of e-commerce by SMEs in Pakistan. The organisational resources presented here are related to the size and organisational structure within organisations that influence e-commerce adoption decisions and its success for Pakistan's SMEs. With a better size and an adequate structure, SMEs can use their maximum resources for successful integration of e-commerce. However, the limited size and horizontal structure of SMEs limits their management to the use of technology resources, even if they already have limited resources. The management of the organisation has direct control over these resources. Therefore, in the following section, organisational contextual factors are primarily examined from the perspective of various sub-themes, including the size and structure of the organisation, inadequate financial and qualified ICT human resources, and the lack of organisational website and payment facility.

7.7.2.1 Size and Structure of the Organisation

The overall size and structure of the organisation influences management resources to adopt e-commerce technologies in business processes. The size and structure of the organisation reflect the management style used for the company's business activities to support e-commerce. With regard to this study, participants strongly emphasised the size and structure of the organisation and agreed that the size and structure of a firm impacted on technology adoption resources. The data from the qualitative interviews show that adequate corporate size and formal business structure play a key role in each organisation's adoption resources of an e-commerce strategy.

During interactions with 1KHIMANUSML participants, it was noted that the organisation was involved in a small business hierarchy and that its informal structure had a negative impact on the e-commerce strategy. Mostly decisions were in the hands of the owner-manager who was controlling most of the departments with limited business resources. To confirm these views one of the respondents said that:

"We do not have a formal structure to communicate with our departments and external customers using the latest devices. Since we do not have a formal structure

and we are a small business, most decisions are in the hands of the owner, who manages most of the organisation's activities and controls the service as that influence decisions about e-commerce in the organisation” (Finance Officer, 1KHIMANUSML).

Participants from the same organisation also explained that the size and structure of the organisation affected most decisions related to system progression. Because of their small size and structure, the available resources were insufficient to change the traditional structure of e-commerce technology.

“I think the small size and the informal structure seriously damage our organisation resources to utilise properly. Although the owner was considering changing the traditional structure of the organisation to accept new technological changes, a smaller company in terms of size and inadequate structure forced him to rely on traditional sales and communication methods” (Field Marketing Manager, 1KHIMANSML).

Due to the small size of the organisation, limited resources prevented the owner-manager from developing and upgrading existing ICT infrastructure units, which is a crucial factor for the adoption of e-commerce. As a result, a participant from the same organisation further confirmed that if the organisation had a formal structure with adequate infrastructure, it would be more likely that management would adopt e-commerce and communicate electronically.

The company 2ISBTICKSML has experienced a similar situation. It is small and consists of informal services and a horizontal business structure to conduct their daily activities without the involvement of official services and the latest communications infrastructure equipment. Traditional business activities and channels frequently used by management controlling the owner of the organisation. One of the respondents said:

“I can confirm that our organisation operates on a horizontal structure, without official departments or sufficient level of administration, because it centralises decision-making with the sole owner. Since the decision-making is in the hands of the business owner, most of the company's employees belong to their family or friends, which influences the adoption decisions of e-commerce related projects on merit” (Co-owner/manager, 2ISBTICKSML).

The issue of smaller size and flat departments was reinforced by another participant from 4ISBTRVLSML:

“4ISBTRVLSML does not have a formal structure. Most of the departments operate in a simple and flat business hierarchy controlled mainly by the owner-manager; similar to the other organisations in Pakistan. There is only a very small marketing department in the organisation, and the owner-manager does most of the marketing activities, with limited social marketing on the social media pages managed by the marketing partners and to communicate with customers” (Finance and Admin Officer, 4ISBTRVLSML).

Due to the organisation's flat hierarchy, the owner's decisions have been the main influence on the organisation's development of e-commerce with the latest ICT hardware equipment. The organisation uses limited technology resources based on size and structure, such as the internet and email, to communicate with business customers. Staff members, including management, communicate internally through the Intranet and over the phone to keep in touch with tour guides and drivers during fieldwork due to the unavailability of staff communications tracking software as confirmed by owner-manager of 4ISBTRVLSML.

While the 3ISBMANUMED and other medium-sized organisations participated in this study belonged to a formal organisational structure consisting mainly of departments of adequate structure and resources to conduct e-commerce activities. 3ISBMANUMED organisation uses the latest ICT infrastructure units with adequate software for communication within the organisation and with external customers for commercial activities through the availability of Internet facilities. With the help of the Marketing and Finance Director and other senior staff, the Owner-manager makes the major organisational decisions. However, the Owner-manager makes most financial decisions to departments. One of the respondents explained:

"Our organisational structure is formal and includes adequate departments that perform their functions without interference from the owner-manager. Each department has its own manager and works according to his experience and knowledge. The owner-manager intervenes only when a manager needs financial approval or a specific allocation of funds to the specific department or project" (Marketing and Finance Director, 3ISBMANUMED).

Various departments, such as ICT, finance, HR and marketing, have e-commerce software compatible with the latest ICT communication devices to fully support e-commerce activities.

Similarly, the company 5ISBICTMED is also well structured and have created a business-friendly environment with the necessary computer and communication facilities. Organisation uses ERP software to manage its activities and support e-commerce orders. One respondent explained:

"As an ICT company with formal business structure, the organisation has multiple ICT capabilities in some of its departments to perform a variety of technology-related tasks, such as e-commerce and the online ordering process via ERP software" (Owner-manager, 5ISBICTMED).

However, another factor affecting the adoption of e-commerce at 8LHRMANUMED described by finance manager related to the overall strategy of the organisation in the formal structure: that employees are afraid of compliance and control. While the new e-commerce systems bring transparency to the business, the individual goals of employees are severely

affected by the fact that many employees have mutual relationships with suppliers and few gain similar benefits from customers. The Owner-manager further explained that:

“Organisational culture was also the biggest obstacle to the adoption of e-commerce because top-to-bottom management in formal structure was still used for manual processing: Employees do not want to accept the formal change. They are afraid of transparency, information sharing and adherence to compliance” (Owner-manager, 8LHRMANUMED).

7.7.2.2 Inadequate Financial Resources

Financial resources refers to the availability of adequate financial budget for the installation of latest ICT infrastructure units, development and maintenance of e-commerce website and providing technological trainings to the employees at various departments of the SMEs. In this qualitative study, during the interviews, participants felt that due to smaller size and informal business structure of their organisations, limited financial budget affected e-commerce related projects in their organisations for example for the development of website and upgrading the latest ICT infrastructure in each of the SME department. One respondent stated:

“Due to the organisation's limited ICT budget, as owner-manager...I am not interested in updating the networking communication channel within the organisation through the installation of the latest ICT networking devices” (Owner-manager, 1KHIMANUSML).

Another participant from same organisation added:

“At some point, owner-manager had been interested in hiring ICT experts and had planned to develop an e-commerce environment by updating their systems – mainly in the manufacturing and product development departments. However, after a few meetings with the ICT professionals, it was decided not to hire them due to internal cost issues” (Finance Officer, 1KHIMANUSML).

For company 2ISBTICKSML, respondents believed that because of internal cost issues and thus a lack of adequate budget for ICT services, their basic ICT infrastructure devices forced them to carry out daily commercial activities. The Owner-manager explained why he did not have the latest ICT infrastructure to support e-commerce:

“We are running a small business and we do not have the sufficient IT advancement budget to pay for the most expensive ICT umbrella devices, especially for e-commerce, which involves the use of the latest computers, including hardware and software networks to communicate, store and manage the information of the request in a limited time” (Owner-manager, 2ISBTICKSML).

However, company 3ISBMANUMED does not have financial problems in order to advance their ICT units and website developments that support e-commerce. Participants believed that they have enough budget for the support of e-commerce related applications:

“As we are new in the local market and had technological capacity to meet the objectives of our commercial strategy. We have latest devices, website connected to online software and enough budget for the marketing of products and services. This was only possible with the availability of IT budget to support our departments and e-commerce services” (Marketing Director, 3ISBMANUMED).

For SME 4ISBTRVLSML, during visits to the organisation, it was also found that they use standard generic software to execute their daily activities. Due to the smaller size and limited budget of the organisation, the administration does not have any reservation software to record customer details and order information. Only the Finance and Admin Officer has access to the use of simple Microsoft Office tools to maintain customer records, and save the necessary data (such as the contact number of the visitors, the locations of the site visits, the futures plan and the monetary transactions of the company) for future use. At the time of the observations, the administration was interested in hiring ICT professionals to build and install client recording software in the organisation, but due to the Owner-manager's lack of interest in adopting the technology, no decision had been taken. To support these views, the Marketing Assistant believed that:

“The organisation’s minimum budget was spent mainly on marketing and other activities. Therefore, with no technological budget, the administration was reluctant to adopt any new technology” (Marketing Assistant, 4ISBTRVLSML).

In addition, maintenance of the website was not affordable for the organisation due to lack of financial resources, as stated by the 4ISBTRVLSML Finance and Admin Officer. However, according to the Finance Manager of 5ISBICTMED:

“Web hosting services had been acquired with search engine optimisation to achieve positive results – although there was an additional cost specific to this that was affordable for the organisation” (Finance Manager, 5ISBICTMED).

Respondents from 6KHITRVLMED pointed out that they have taken all the necessary measures to integrate e-commerce into the business, but that high training costs prevented the Owner-manager from providing technical training to lower-level management:

“Within the allocated budget, owner often sends his ‘senior and middle managers to technical training’ when he thinks managers need additional ICT training to manage departmental systems that promote business technologies. However, ‘sometimes limited training budgets prevent training of administration level employees and ignored the lower executives’, which demotivates them to work on online tools ...” (Finance Manager and ICT Manager, 6KHITRVLMED).

For 7KHRHTLSML, respondents believe that they did not have enough budget to manage the website, which was costly for the Owner-manager. However, respondents from 8LHRMANUMED agreed with the views regarding financial resources and stated:

“We have enough budget to support the e-commerce project with the availability of the latest ICT equipment connected to a fast wireless internet connection. As a

result, the organisation does not suffer from any internet downtime issues” (Finance Manager, 8LHRMANUMED).

However, both the Finance Manager and Marketing Manager repeatedly mentioned top management’s reluctance towards technology innovation such as e-commerce. This was considered a problem, as management thought that when everything was working without e-commerce applications, there was no point in increasing the technology costs by adding e-commerce. However, globalisation and the action of competitors have alarmed senior management in the market, and it is necessary to adopt e-commerce as a new tool for the following reasons:

“If firm, in the future is not going to be changed its technology policy then change will change the organisation destiny” (Marketing Manager, and Finance Manager, 8LHRMANUMED).

Due to the limited technology budget of SMEs in this qualitative study, the reasons for not having the latest ICT infrastructure in the organisations were provided. An adequate budget helps the owner to upgrade the systems and help his employees provide sufficient technological training for the adoption of e-commerce and work on online devices.

7.7.2.3 Inadequate Skilled ICT Expertise (HR)

The qualitative interviews data showed that the success of e-commerce adoption was minimal in SMEs due to insufficient ICT expertise within the organisations. ICT expertise with adequate human resources to properly manage and install the latest ICT devices for e-commerce is required. However, in this study, the SMEs surveyed thought that they did not have competent ICT human resources capable of operating and maintaining technological devices, installing softwares and fixing hardwares and developing websites within their organisations to support e-commerce. In subsequent discussions with participants, the finance manager and the field marketing manager of 1KHIMANUSML highlighted the problem of lack of qualified ICT expertise. The organisation obtains the assistance of a local small ICT firm regarding technical support and controls design equipment such as laser printers and the overall ICT infrastructure:

“Normally, we have never encountered any major technical problems with our ICT and manufacturing systems, but whenever we found a technical error in the systems, ‘we called the contracting company that solved the problem...because we had no IT specialist’ to rectify the errors” (Finance Officer and Field Marketing Manager, 1KHIMANUSML).

Respondents from SME 3ISBMANUMED further explained that at the beginning 3ISBMANUMED used TYPO 3 technology to run the business processes but then updated and installed Magento 2 technology for its e-commerce operations. However, during the

installation phase of the Magento 2 software the organisation struggled to find qualified ICT personnel to configure the software quickly. The Owner-manager said that:

“When the organisation decided to update the TYPO 3 e-commerce software to Magento 2, the procedure for configuring the entire software within the organisation took seven months ... as management did not find the Magento resource staff to configure, run and manage its applications successfully according to business requirements ...” (Owner-manager, 3ISBMANUMED).

However, SMEs such as 5ISBICTMED and 6KHITRVLMD had some adequate ICT personal to maintain their websites and ICT devices to support e-commerce applications. One of the respondents confirmed that:

“Our ICT devices are controlled mainly by ICT specialists in ERP, sales departments, logistics and finance to handle the e-commerce orders of the websites” (Sales and Support Manager, 5ISBICTMED).

In support of these views, one respondent from 7LHRHTLSML stated that, with respect to the development of websites and their applications to support an e-commerce project:

“In a traveling business, we are interested in developing a website and promoting our business electronically. However, we did not have specialised computer specialists who could help us with the website and its upgrade” (Account Manager, 7LHRHTLSML)

In each organisation, an ICT department with specialists is needed to control ICT equipment and manage the e-commerce project. The qualitative interview data, in this case, show that 7LHRHTLSML would require a fully operational ICT department to manage the organisation's e-commerce and ICT units, which could be an additional expense for owner-manager. During several interactions with participants in face-to-face and telephone interviews, the Owner-manager stated that:

“The general level of ICT skills of employees is not in line with international standards” (Owner-manager, 7LHRHTLSML).

Hence, the Admin Officer as a participant also confirmed that:

“Small Pakistani hotel companies (including 7LHRHTLSML) face a severe shortage of qualified, low-cost professionals ready to meet their ICT needs. As a result, 7LHRHTLSML has forgone the idea of using e-commerce rather than committing to additional costs, not to mention the effort that would be necessary to teach their potential and current employees about the use of e-commerce” (Admin Officer, 7LHRHTLSML).

The Finance Manager from 8LHRMANUMED said that the company had a website but applied traditional methods to obtain sales. 8LHRMANUMED's management plans to make purchases electronic and wants to develop its e-commerce offerings over the long term by integrating its current systems into an e-commerce website and offering a payment facility

to potential online customers. The delay in the switch, according to the respondent, is due to:

“Lack of specialised ICT staff within the company ... who are able to implement this change for us in the long term” (Finance Manager, 8LHRMANUMED).

However, thanks to the Owner-manager's tireless efforts, the company has successfully implemented a robust ERP system to manage critical information for decision-making. The Finance Manager also explained the position of the Owner-manager on e-business developments within the organisation.

“Owner is on the cusp of using an Electronic Data Interchange system and a Bid Management System, which is competitors type of production system for manufacturing vehicle spare parts in a more comfortable, economical and timely way to meet the delivery needs of customers” (Finance Manager, 8LHRMANUMED).

The decision of top management is not only about integrating e-commerce applications but also about developing the entire field of ICT units across the organisation. However, the Finance Manager stated that due to the lack of qualified technical HR within the production and operations department, the management had decided to entrust the project of implementation of e-commerce to third-party system specialists; responsible for the implementation and development of user training.

As a result, the SMEs participating in this study felt that their organisation did not have ICT employees with the necessary skills to maintain and control technology devices, to develop longer-term websites, and to maintain electronic commerce applications including various software – mainly because of the alleged expenses related to the acquisition of an ICT expert and also limited organisational budgets.

7.7.2.4 The Absence of Organisational Website and Ordering Payment Facility

SME participants emphasised the important role of effective e-commerce websites with payment facility, which can be a useful tool for managing e-commerce transactions, connecting to the Internet to sell various products and services, and communicating with potential customers. The qualitative data clearly show that the perceived success of SMEs is generally dependent on the availability of the website, which also facilitates the sale of commercial products through various payment channels. Thus, in this study, four of the medium-sized SMEs had a website and a total number of SMEs that did not adopt the e-commerce site numbered four (small SMEs) and used mainly traditional sales methods for commercial transactions. However, traditional methods have also been considered as a factor in the adoption of e-commerce for medium-sized businesses in the local business environment of Pakistan.

During the early stages of the interviews, the participants of company 1KHIMANUMSML respondent that the company's website is under construction; the internet was only used to send and receive official emails and send quotes to the customers. Further, employees communicated with each other by using digital mobile devices including WhatsApp. During the later stages of the analysis, the Owner-manager was again contacted for information on the development of the website, but he stated that:

"There was not have enough time to work on the site" (Owner-manager, 1KHIMANUMSML).

As the organisation does not have a web tool available, it also lacked an adequate payment facility, which can facilitate the organisation of e-commerce.

Another participant from same organisation further explained that:

"When the owner-manager started the business, the target market was not very good, and product prices were too high and not affordable for local customers. As a result, the owner-manager was not interested in developing the corporate website with payment facility and selling products through e-commerce channels" (Finance Officer, 1KHIMANUSML)

Very importantly, in designing the website, finance officer and field marketing manager agreed with the views expressed above, further stating that a relevant of the website could help their e-commerce project. However:

"At the time of the organisation development, the 'website was not required'. Owner-manager was 'not interested in developing the website' either due to the availability of social channels such as Facebook in the society to promote and sell the products ..." (Field Marketing Manager and Finance Officer, 1KHIMANUSML).

Regarding organisational e-commerce capabilities, while using the internet to support e-commerce on social media, 1KHIMANUSML uses the Web 2.0 Facebook channel to market its products by uploading different product images. Participants believed that since the organisation does not have an active website, the Facebook page was used to analyse the organisational e-commerce capability. The page consisted only of product images and contact information. No product detail description and prices were found on the page. If the customer wants to know more about the product, they can contact the organisation by sending a Facebook message or by telephone. The Field Marketing Manager agreed with these views and indicated that:

"Due to a company's informal profile; has prevented the owner-manager from developing a website with payment facility and receiving orders online, which is a crucial factor when adopting e-commerce. Although the internet as a driver helps in communication between staff members and customers, a slow internet speed together with poor quality of ICT technology units impedes the overall adoption of e-commerce. Therefore, the organisation relies on Microsoft Office tools and email to

communicate with customers and to take orders. Without electronic sales channels – and given the traditional commercial environment of the country – the organisation mainly relies on traditional sales methods to sell their products and communicate with customers” (Field Marketing Manager, 1KHIMANUMSL).

Thus, the above traditional sales interactions without web-presence (website) between the organisation and the B2B and B2C customers, based on the organisation’s traditional sales techniques, result in their ICT use being predominantly email applications and Microsoft Office tools.

In relation to company 2ISBTICKSML, at the beginning of the interviews with various participants, there was no active website and therefore, a complete system of e-commerce transactions in the organisation was not available. To receive orders online the organisation would require an extensive electronic platform but, as confirmed by accounts officer that the organisation did not have the appropriate ICT infrastructure to develop website and further support e-commerce web orders through payment facility. Although the sales team and Owner-manager used email through the internet to communicate with corporate clients, only personal email accounts were used to transmit and send and receive visa and ticket related documents; including personal details, copies of passports, digital pictures, visa requirement documentation and (sometimes) itineraries.

Another reason for not having a website was explained by the Co-owner/manager:

“A website usually requires ‘proper administration, an additional budget and constant monitoring of the site and an individual ICT staff to manage the website and keep it online’. To rely more on the website and communicate with our corporate clients, our goal is to ‘communicate by email’, which is an easy and secure communication channel” (Co-owner/manager, 2ISBTICKSML).

The Accounts Officer further expounded that the Owner-manager might in the future launch a website, but at this stage they rely solely on easy social media tools like Facebook, Twitter, WhatsApp and Skype. He uses these tools to promote the business and improve the client’s commitment to the company. The Facebook page only provides the necessary information about the products and services that the firm offers to the public and only provides information about the 2ISBTICKSML rates for external customers, and some other airline travel organisations. Of note is that the business did not depend entirely on the use of social networks to promote itself.

Nevertheless, with the continued growth of 3ISBMANUMED a medium-sized firm, improved access to international markets, and more satisfied customers, all interview participants felt that their organisation had done well to modernise by adopting e-commerce technology through the development of website and online software. The issue of web presence and selling methods was elaborated by the Owner-manager:

“To support the Magento 2 software, the organisation developed a website with an online purchase platform through which they could sell products and manage online orders and digital transactions” (Owner-manager, 3ISBMANUMED).

Another reason for developing the website was – as the ICT manager pointed out:

“Most European customers were not able to travel to Pakistan to buy products physically. The management therefore launched the website through the Pakistan ISP provider, which has a commercial presence (DOT.com) for domestic and international customers. Customers in the EU region can purchase products online and have them delivered directly from the organisation's warehouse in Italy” (ICT Manager, 3ISBMANUMED).

In further discussions with the participants of same organisation, marketing director indicated that with the development of the website, sales were now increasing. Using traditional methods, they spent a lot of time and money in capturing the market and getting customers. However, by using the website they received orders more quickly and with fewer complications.

“In 2016–17, online organisational transactions generated primarily by the ‘website accounted for 43% of all sales in the organisation’ ... this was not the case before 2016 due to ‘traditional sales methods and limited communication channels’ between the buyer and the organisation. We think the ‘website’ has helped the organisation positively ...” (Marketing Director, 3ISBMANUMED).

To support the views of 3ISBMANUMED, 4ISBTRVLSML participants agreed that based on the general situation of the ICT infrastructure and the commercial background of the organisation, it was assumed that the organisation did not have the web presence with payment facility for e-commerce. From the interview transcripts, one of the participants further explained:

“Our organisation had an internet communication system (Intranet), which the staff members use to communicate with each other, to access data, to perform various tasks and assignments, and to write reports. Only management and the marketing department use extranet communication (by email), for the purposes of marketing and designed to promote customer loyalty without website, interaction with customers and long-term commitment” (Owner-manager, 4ISBTRVLSML).

Therefore, the sales method used with B2B and B2C customers was traditional and involved no online systems or web pages. To support these views, the Marketing Assistant said that management did not use any web pages for commercial marketing – one reason being maintenance and affordability. Website maintenance was not affordable for 4ISBTRVLSML, as discussed earlier. Nevertheless, the organisation relies mainly on traditional sales techniques, including print and digital media, rather than on e-commerce due to unavailability of web presence.

“Without e-commerce software and a website to receive online payments, the company relies primarily on traditional sales methods, including email over the

internet, when dealing with customers B2B and B2C” (Marketing Assistant, 4ISBTRVLSML).

For SME 5ISBICTMED, participants explain, with the availability of the latest technology devices, the company had an active, ICT-supported website that focused on online customers and their orders. The online sales cycle process is managed by the Department of Sales and Support, Logistics, Warehouses and Finance. The organisation’s primary purpose is to sell computer equipment and, as a result, a large part of the commercial activities are carried out via the website. The Sales and Support Manager said that:

“The e-commerce application has introduced a new aspect to the running of the business. As an ICT company, we know the importance of the online website ... which is good for the business and our online customers ...” (Sales and Support Manager, 5ISBICTMED).

Due to the limited information on products and services on the website, most customers contact the store for more product details and specifications before ordering the product online. The Sales and Support Manager explained that the main reason for the low number of online orders in Pakistan was the great importance given to the appearance of the website. In addition, the Finance Manager talked about the importance of clarity of information:

“The presence of the website only attracts most customers, but if the detail information and product specifications can also be uploaded to the organisation’s website ... instead of using the social media platform, I think, it will be a greater chance to receive more online orders from potential customers through the website” (Finance Manager, 5ISBICTMED).

There are only two payment options available on the website: cash on delivery and digital bank transfer. No other digital payment options such as payment by credit/debit card and by mobile banking apps (including Easy Paisa or mobile Upayments) are found on the 5ISBICTMED web page. The Finance Manager noted that:

“The penetration rate of digital payments for the use of bank cards including credit/debit in the population of Pakistan is low, and for e-commerce, a credit/debit card is required to conduct online transactions” (Finance Manager, 5ISBICTMED).

The qualitative interview data from another SME 6KHITRVLMED shows that a firm is very active on various platforms, including social, digital and print media. The Owner-manager promotes the company through various marketing channels such as social, digital and print media. To make it easier for customers, the Finance Manager responded that the ICT department provides marketing platforms (including social media pages such as Facebook and Twitter) and regularly uploads information about vacation and travel packages. Another participant added (in support of the website) that:

“To traditional sales methods, the organisation has a website – controlled and managed by the marketing department – but there is no order and payment facility available for web orders. The primary purpose of the website is only to provide customers with necessary information about the various products and services of the organisation” (ICT Manager, 6KHITRVL MED).

As noted in the data collection methods, the content of an organisation's website is analysed to examine overall performance and understand the optimisation of web users for e-commerce support. The organisation uses three corporate websites to deal with online customers (none of them has an online payment system) as stated by the Owner-manager:

“In a travelling company, our many corporate clients contacted the organisation to learn about various holiday packages and travel information. For them ... we have developed a website providing the necessary information about products and service” (ICT Manager, 6KHITRVL MED).

The company website shows various elements that prevent the organisation from fully developing an e-commerce environment. The website contains no security features that reassure potential online customers with regard to online transactions. The electronic digital payment option service is also missing on the website, either by credit/debit card and bank transfer or cash on delivery. This is a significant drawback and prevents the organisation from receiving any order payments through the e-commerce channel.

The above quotes from 6KHITRVL MED draws attention to the fact that the organisation's website provides only the necessary information on the organisation's products and services, and cannot be used for e-commerce transactions. Most walk-in customers visit the organisation and discuss their plans and flight schedules for future appointments. Customers visit the website to get an idea of the product and services and then contact the organisation by email or phone to reserve the required online packages.

Concerning e-commerce website applications and developments within the organisation 7LHRTRVL MED, admin officer explained that the Owner-manager believed in a traditional personal sales relationship rather than communication technologies. Nevertheless, the Owner-manager attempted to conduct certain commercial activities after developing a basic website that had been outsourced to an external web development company and announced the provision of room packages on other recreational third-party websites. The organisation did not, however, receive the response expected by the Owner-manager. With regard to the development of websites and their applications to support an e-commerce project, the Accounts Officer further responded:

“We had a website; it is the only way to provide the necessary information about the products and services of the organisation. However, the response rate was not very good... So, after a while, we closed the site” (Accounts Officer, 7LHRHTLSML).

The Owner-manager further agreed with these views and stated that the organisation no longer has an appropriate website to receive online bookings. He also explained that being a small company with a limited budget, 7LHRHTLSML does not have adequate ICT and marketing services, with specialised staff (like other medium and large organisations) to manage and support e-commerce applications; including websites. As a result, no computer reservation software has been installed to reserve rooms and electronically store customer archives. He said the firm was relatively new in the country:

“Therefore, our contemporary computer systems ‘did not help the e-commerce project software’, including the additional development of the website in the organisation ...” (Owner-manager, 7LHRHTLSML).

The Admin Officer from the same firm agreed with these views and stated that the organisation no longer has an appropriate website to receive online bookings. By using a fax machine (connected to a separate telephone line) and other communication devices, the administrative and financial departments send and receive room reservation quotes to business clients and individual business owners. According to the Admin Officer:

“The use of mobile phones was very beneficial at the beginning of the business, when the country’s telecommunication system was unreliable. Today, the use of internet messaging services (email) via mobile phone and telephone to reserve rooms and for business communication is widespread in the firm. Many business clients use internet messaging services (email) connected to their mobile network to reserve rooms” (Admin Officer, 7LHRHTLSML).

Some effort has been made to use social Web 2.0 tools for marketing. 7LHRHTLSML has a Facebook page, and the organisation expects potential customers to call their landline or mobile numbers or send an email to request reservations through Facebook. However, the data shows that social networking sites that use Facebook only help to market the company's products and services and that the company cannot attribute directly benefit from e-commerce through its use. Hence, due to the lack of a website, the commercial activity meets the traditional standards of the telephone or mobile devices, email and fax systems; dictated by the local commercial market of Pakistan. However, as a driver, there is an internet connection in the organisation that can support the e-commerce website in the future.

For 8LHRMANUMED, it has a website to showcase its products and services as well as information about its suppliers, developed by a local third-party ICT company. However, as the Marketing Manager stated:

“At the moment, no order and payment options are available on the website to support e-commerce transactions” (Marketing Manager, 8LHRMANUMED).

The Finance Manager added that the company had a website but applied traditional methods to obtain sales. The Microsoft Outlook email account is mainly used for communication between business partners, suppliers, external customers and other internal employees of the different departments, via the intranet and extranet (internet). This was further confirmed by the Owner-manager from organisation:

“We also have a website to showcase our products and services as well as information about our suppliers, developed by the local third-party ICT company. However, at the moment, no order and payment options are available on the website to support e-commerce transactions because of email services” (Owner-manager, 8LHRMANUMED).

The Finance Manager also agreed that the company had a website but applied traditional methods to obtain sales follows a traditional method of trading by tendering, institutional and distributor selling and engaging owners of transport companies, using one or more combinations of the phone or mobile devices, fax and email.

“We had a minimal online presence and received orders from business partners and clients and individual customers through traditional messaging (email) facilities” (Finance Manager, 8LHRMANUMED).

As noted previously, the use of the company's website was primarily to provide general information about the company and to market its automotive products and services to its customers before they contact and visit the organisation and there is no payment method or ordering facility available on the webpage. Therefore, the Marketing Manager confirmed that:

“8LHRMANUMED website is still a marketing tool similar to previous SMEs participated in this study. The website only serves to market the company's automotive products and services” (Marketing Manager, 8LHRMANUMED).

From the qualitative interview data gathered at 8LHRMANUMED, it was found that there was no cash or electronic order or payment system available on the website. However, ICT devices – especially ERP software – offer some partners and private customers the advantage of paying their accounts by electronic bank transfer, cheque or cash in person at the local bank.

The SMEs selected for this study do not intend to sell their products through e-commerce. They mainly use the ordering system via email, fax and internet telephone and mobile communication for their current e-commerce initiatives. In the longer term, the medium-sized company's management have decided to work in e-commerce to increase their national online sales and international presence. This will be actioned by considering different technology options such as cloud computing, Web 2.0 tools or maintaining the ICT infrastructure alone by creating an internal ICT base to connect all departments centrally.

However, with the smaller firms the website only serves to market the company's products and services. This traditional method of doing business, using one or more of the following communication channels: telephone or mobile communication, internet fax and email, is still standard in the local business environment of Pakistan. Therefore, telephone and mobile applications or internet email can be defined as e-commerce in these situations.

7.7.3 Environmental Contextual Factors

The environmental contextual factor is the area in which the organisation establishes its activities (Tornatzky & Fleischer, 1990) or, in other words, concerns the external environment (Scupola, 2009) and the explanation of how such factors influence the adoption of e-commerce, but that the top management of the organisation does not have much control over them (Teo & Pian, 2004). In the context of Pakistan, the environmental contextual factors (theme) influencing adoption of e-commerce are mainly discussed from a number of perspectives (sub-themes) such as traditional selling methods, lack of consumer e-commerce trust, consumer preference for cash payments on delivery and technological awareness and education in society.

In the next section, each sub-theme is discussed, which influences the adoption of electronic commerce in SMEs in Pakistan.

7.7.3.1 Traditional Business Selling Methods

Traditional business selling methods were strongly emphasised by all participants in the qualitative study. Interview data revealed that traditional sales methods appeared to be an important sub-theme and that traditional sales methods, including personal contacts, personal relationships, telephone or mobile communication, and e-mail contacts between customers, suppliers and partners, was a barrier for the majority of SMEs to adopt e-commerce. The Owner-manager of 1KHIMANUSML outlined the organisation's sales process by explaining that with no e-commerce sales channel, the company used internet email, mobile commerce, Facebook and traditional physical face-to-face contacts with local and construction business clients to sell the products.

“The main traditional sales channel was personal face-to-face communication between the sales team of the organisation and local domestic and commercial customers. The sales team visits the construction sites to obtain orders and convince clients to visit the showroom to verify the products physically. Also, during field visits, the sales team collects the basic requirements of the customer's products and sends them to store staff based in the central office. Then, store personnel communicate with customers by telephone or email to provide more relevant information about the products and services in which the customers were interested. The selection of the final product is always made in the showroom (central office)

after physically checking the products face to face” (Owner-manager, 1KHIMANUSML).

Without electronic sales channels – and given the traditional commercial environment of the country – the organisation mainly relies on traditional sales methods to sell their products and communicate with customers. Personal contacts and alternative electronic payments are therefore the preferred sales techniques in the organisation.

For organisation 2ISBTICKSML, a traditional commercial method is beneficial for the organisation, according to owner-manager, in the travel and ticketing sector, there is much competition with more than 300 ticketing agencies operating in and around Islamabad and thus it is difficult to compete in such an environment.

“To retain its customers, 2ISBTICKSML prefers to establish a climate of trust and maintain a traditional relationship with its customers and buyers” (Owner-manager, 2ISBTICKSML).

In the business selling process the sales team also visits individuals of SMEs and the owners of large retail stores to provide the necessary information about the different packages. Those interested then visit the organisation personally to get more information. participants explained that:

“In this type of family business, ‘personal selling’ is very common. We use people (sales force) to sell the product ‘face-to-face’ with the client. Selling-force aims to inform and encourage the customer to buy the package or, at least, convince them to visit the company ...” (Accounts Officer and Co-owner/manager, 2ISBTICKSML).

The organisation depends heavily on the sales team. They usually visit local customers and owners of other SMEs and corporate clients to provide necessary information about the company's trips and ticket packages. If customers are interested in knowing more about the offers, they can telephone or physically visit the organisation. Some individual customers without a prior appointment visit the organisation to speak face-to-face with sales personnel about packages and other queries related to trips. Corporate clients, on the other hand, communicate with the sales team or the owner-managers via email or telephone as per described by the Co-owner/manager.

Before the development of the website and the installation of the e-commerce software in 3ISBMANUMED, the organisation relied primarily on traditional sales techniques, including face-to-face personal contact with customers and owner-manager's business relationships. Word of mouth was also prevalent in the organisation in the sale of manufacturing products. However, the Marketing Director felt that:

“To a certain extent, the traditional sales method is transformed after the technological change in some departments of the organisation ... before, customers

physically went into the organisation and were interested first in touching and feeling the products, then decide to buy the products” (Marketing Director, 3ISBMANUMED).

The organisation used traditional and electronic sales methods to communicate with B2B and B2C customers. Most organisational transactions used traditional methods such as word of mouth, face-to-face contact and owner-manager relationships with clients. However, with the continuous growth of the company, potential access to international markets, and the expectations of customers, the organisation decided to launch e-commerce technology through online software (Magento 2) and a new website.

However, as the website development was not affordable for 4ISBTRVLSML, marketing assistant respondent that, so to attract customers, owner-manager mainly used bus and vehicle print advertising a traditional communication method in Pakistan but with a limited budget. Sometimes 4ISBTRVLSML used social media with the help of the circle of friends, but the response was not very good. The Facebook page provided information about tour packages and different tour photos but no customer had contacted them through that page.

“In small tourism business, many ‘clients preferred to communicate face-to-face, looking for discounts for groups and more interested in negotiating family and group hotel reservation’. It can only be done by ‘personally visiting the organisation’ and discussing packages with members of the staff” (Finance and Admin Officer, and Marketing Assistant, 4ISBTRVLSML).

Another participant from the same organisation highlighted that only management and the marketing department use extranet communication (by email), for the purposes of marketing and designed to promote customer loyalty, interaction with customers and long-term commitment. Nevertheless, the organisation relies mainly on traditional sales techniques, including print and digital media, rather than on e-commerce. Staff members keep in touch with old and regular customers, informing them about future festivals through emails and mobile marketing tools such as SMS. The Owner-manager explained that:

“For new clients, the organisation relied more on traditional print media and digital tools, such as promoting packages on local cable TV channels, Facebook page, choking walls, posters, brochures and especially ... the radio channel to promote the products and services” (owner-manager, 4ISBTRVLSML).

Traditional and digital communications, including email, phones, and mobile devices, are the common thread connecting the organisation to B2B, B2C, and internal employees.

In-depth discussions with participants of 6KHITRVLMED revealed valuable qualitative data about traditional sales methods that exists between organisation, customers and partners. The organisation had all the traditional and digital sales techniques available to sell their products and services. However, these customers prefer conventional telephone and face-

to-face interactions, together with digital communication via the internet mail (extranet). Skype has also been used in the organisation to organise official meetings with global partner customers (hotels) and suppliers (other ticketing agencies) via an extranet. Another participant further argued that 6KHITRVLMD also collaborates with other sister companies to provide travel services and the use of email and telephone is widespread in these communications. During the analysis, it was found that the organisation does not have adequate communication software to communicate with its sister company and other business partners; instead it uses Skype and other ICT internet connected communication tools such as email.

“This was because its business partners use traditional methods, so in order to communicate they must do so too. Most of the time, interested travel companies wish to communicate by email or telephone and, if necessary, physically visit the organisation to discuss the matter. Many ticketing agencies on the market ‘do not prefer to communicate over the internet or through online software’ because sometimes they are ‘reluctant to communicate’ and cannot easily explain what they meant by using online tools” (ICT Manager, 6KHITRVLMD).

However, with the growing awareness of e-commerce in society and the high penetration rate of young Facebook users via mobile devices, digital media has begun to play an essential role in promoting e-commerce. Thus, the minds of many SME owners and new entrepreneurs are changing and moving from traditional sales methods towards e-commerce. However, the ICT manager felt that:

“SME firms are more cautious about the adoption of e-commerce as an explosion of Web 2.0 marketing channels on social networks, generating more benefits than old traditional methods of personal contact or word of mouth” (ICT Manager, 6KHITRVLMD).

For 7LHRHTLSML, one of the participant recounted the sales process of the organisation, which is based mainly on traditional techniques. As noted previously, there is no formal commercial and marketing service and traditional tools such as the telephone (or mobile communication), fax and face-to-face physical interactions are used for commercial interactions.

“Local and national customers usually find the hotel's contact information by searching Google online and then calling the organisation to speak to admin/booking receptionist to enquire about room availability with prices and payment structure per night. Corporate customers (those coming from other cities to Lahore for leisure purposes) prefer to communicate by email or fax by sending all the necessary information about room reservations, including the number of people, dates of arrival and departure. Admin/booking receptionist, who is responsible for communicating with corporate clients, discusses their requests by email or telephone. The final booking is made when the customer, whether local or national, goes to the organisation and physically settles the number of rooms booked using a convenient payment method, such as cash or bank transfers via a national bank” (Owner-manager, 7LHTHTLSML).

Due to the small size and organisational structure, which is considered an organisational factor, the owner is restricted to using conventional sales methods without the reservation software that would attract more customers. However, due to the lack of a website, the commercial activity meets the traditional standards of the telephone or mobile devices, email and fax systems; dictated by the local commercial market of Pakistan.

The Owner-manager from 8LHRMANUMED explained the sales cycle of the business, saying that they participate in public and private sector tenders to sell their products. With regard to institutional B2B sales, the Owner-manager reported that their organisation uses the email marketing tool to send various promotional emails regarding new and existing offers and to encourage customers to buy/interact with them. The company has licensed dealers and distributors throughout the country who act as an agent of the organisation, selling automotive products to retailers. The sales and marketing teams officially visit the transport companies and show them various samples and then provide detailed information on products and services related to 8LHRMANUMED. The sales and marketing staff present the company's products through brochures and iPads or tabs – this is the new technology initiative taken by management to attract the attention of its customers:

“Both suppliers and customers use traditional fax, telephone or mobile communications and physical delivery of documentation. Many of their automotive industry's trading partners are not online. Most of these firms are small or medium-sized and still use traditional transaction processing methods. Our business partners including suppliers and our customers rely on traditional telephones and fax machines to buy from us ... even if we wanted to buy from them (suppliers and business partners), we communicate manually” (Marketing Manager, 8LHRMANUMED).

Hence, it is confirmed by the participant that 75% of the commercial transactions are received by email and the remaining 25% are via the traditional methods of telephone or mobile devices and faxes dictated by the Pakistani traditional market. The use of social networking sites such as Facebook, YouTube and Instagram were not widespread in the organisation and would not be a goal of choice for the top administration. This is because the company's trust in the traditional tendering method is aimed at small and medium-sized private and public organisations – including major government agencies.

7.7.3.2 Lack of Consumer E-commerce Trust

The qualitative data analysis provided a number of important additional insights with respect to cultural barriers which sometimes affect an organisation's choice to adopt or not adopt e-commerce. One of the respondents from 1KHIMANUSML found that while in big cities many household members have the purchasing power to go online and make online purchases, they do not trust the internet enough to do so. Lack of consumer trust is one of

the biggest hurdles for e-commerce purchases in Pakistan, and thus a significant barrier to relying solely on e-commerce transactions. He further maintained that:

“Even if consumers have bank accounts, they are sometimes reluctant to buy products online and share their details on merchant websites. This reluctance is particularly true of those consumers who have limited income and purchasing power and are therefore hesitant to share their details and waste their limited money online. Summing up, most consumers had limited purchasing power and only a small portion of the population can afford to buy products electronically; moreover, most of the population was not interested in what they perceived as wasting money by making online purchases” (Owner-manager, 1KHIMANUSML).

In the further face-to-face interviews, respondents further agreed that manufactured goods are not the type of goods that can be ordered online. Customers who were interested in buying the kitchen products usually come to the showroom and select the product after checking the quality and material of the brand. As a result, participants said:

“It is very complicated to make sales until the ‘manufacturing product can be felt and touched correctly’. Therefore, ‘physical observation’ is mandatory to buy manufacturing products ...” (Finance Officer and Field Marketing Manager, 1KHIMANUSML).

Moreover, another owner-manager from 3ISBMANUMED believed that online orders and digital payments represented the majority of transactions with EU customers, but that the amount of e-commerce transactions remains limited for Pakistani consumers. Even if the details and product descriptions are displayed correctly with additional information on prices, warranty options and delivery, most Pakistanis remain reluctant to use the e-commerce platform and conduct online transactions:

“I read in the local newspaper cases related to online shopping that involved consumers who had purchased multiple products online on websites of local and foreign companies. They did not receive the same items as what they paid for and were cheated by online business. As a result, most Pakistani customers prefer to visit the organisation's store, physically check the product, and then engage in communication to negotiate the price ... which they can not do online” (Owner-manager, 3ISBMANUMED).

In another case, the ICT Manager from 6KHITRVL MED said that, in Pakistan, because most of the clients don't trust e-sales, leisure clients prefer to visit the organisation and are interested in face-to-face contacts to negotiate prices which they cannot do online via website. The Finance Manager from the same organisation confirmed these points of view:

“There is no electronic payment option on the website because consumers do not trust e-commerce and are reluctant to make transactions online ... that is why it is not essential to add another feature and offer an online payment method on the website” (Finance Manager, 6KHITRVL MED).

Similarly, in 8LHRMANUMED there is no payment method or ordering facility available on the webpage, as marketing manager stated that:

“Most customers visit the organisation, physically check spare parts to match the size of the old part and, before buying, they look for discounts as most of the customers do not trust on e-commerce-based selling” (Marketing manager, 8LHRMANUMED).

7.7.3.3 Consumer Preference for Cash Payments on Delivery

One of the main issues, in terms of payment method mentioned by the interviewees, is the consumer preference for cash payments on delivery. For 1KHIMANUSML, the selection of the final product is always made in the showroom (central office) after physically checking the products. Regarding the final payments, the Owner-manager, Finance Officer and Field Marketing Manager all agreed that:

“The final order payments were always received on the ‘cash form’, and then the product was sent for delivery or can be picked up at the head office” (Owner-manager, Finance Officer and Field Marketing Manager, 1KHIMANUSML).

For 2ISBTICKSML, participants agreed that e-commerce payment systems facilitate the acceptance of electronic payment for online transactions. As noted in the previous steps of the interviews, the organisation did not have an active website for conducting online activities and receiving electronic payments via a digital credit/debit cards payment system. As a result, it relied primarily on the traditional cash payments described by the Co-owner/managers as a preferred and secure means of payment. The Accounts Officer added:

“The penetration rate of digital credit/debit card payments in the country is relatively low and, for online purchases, buyers need appropriate banking cards to be able to make transactions online, which is not widely available in the country ...” (Accounts Officer, 2ISBTICKSML).

During the content analysis of the website of 3ISBMANUMED, it was found that the website is not secure for customers to make digital debit/credit card payments and is not trusted because no padlock symbol appeared in the address bar; ensuring that the site was secure for customers. However, different payment options, such as cash on delivery (for Pakistani customers) and credit/debit card payment (only for EU and Italian customers) are available for the customers. On analysis of the payment page, it was found that it had not been verified by the secure Visa and MasterCard code associated with the SSL certificate. As a result, many customers were hesitant to make online purchases by sharing their personal information and debit/credit card details. However, the cash on delivery option was available to customers, which was a more convenient means of payment preferred by Pakistani

customers. Participants such as the Owner-manager and Marketing Director explained the reasons why Pakistani customers used the cash on delivery method:

“In Pakistan, most customers, even if they wanted to go online and decided to shop online but ‘sharing their contact information sometimes prevented them from doing online transactions’. As a result, they only reserved the products on the website ... however, ‘they never paid online using a credit card and preferred to pay when they received the product physically’ and verify it properly before paying in cash because they do not trust online shopping ...” (Owner-manager and Marketing Director, 3ISBMANUMED).

The ICT Manager from same organisation confirmed these views and added:

“Although we receive e-commerce orders, most customers have chosen the cash on delivery option to pay cash, and limited customers are transacting online through digital debit/credit cards ...” (ICT Manager, 3ISBMANUMED).

As a result, most customers prefer to pay cash on delivery. This has affected the benefits the organisations could expect from e-commerce.

For 4ISBTRVLSML, if the client accepts the travel package and agrees to the hotel accommodation, they are given the Microsoft Word or Excel confirmation travel itinerary generated by the Account Administrator after paying in cash. The Owner-manager stated that:

“Cash payment is the most preferred method of payment in society adopted by many small organisations in the country ...” (Owner-manager, 4ISBTRVLSML).

Once the corporate clients select a package, they receive a confirmation email with the details of the executives in question and hotel confirmation. The final payment is made using the digital bank transfer method directly from the client’s account to that of the company. One respondent confirmed this:

“When the corporate clients approved the travel plan and accepted it by email ... then we scheduled the payment by bank transfer over the phone or email providing business details and bank account information to receive the corporate customer’s money ... which is a secure way of payment between Pakistani organisations, to keep the transaction record for future use” (Finance and Admin Officer, 4ISBTRVLSML).

For company 5ISBICTMED, after receiving an order and confirmation from the customer, the sales team confirms the order in the ERP software and then sends it to the logistics department and warehouse for shipment. Simultaneously, the sales department informs the finance department about the terms of payment by email in the ERP. If it is an advance payment over the phone or digital banking payment, the finance team passes the bank details to the customer – either by phone or by email – so that as soon as the payment is received the order is dispatched. If it is payment in cash on delivery then the logistics

executive makes the necessary arrangements for the shipment and informs the TCS about the cash payment. The TCS collects the order from the warehouse and delivers it to the customer's site upon receiving the payment in cash before opening the order. The Owner-manager explained the reason for taking cash at the time of delivery:

“Pakistani ICT consumers do not trust online purchases and pay with digital banking methods before obtaining the product. They preferred to pay after receiving the electronic products ... first, verify the products and if the product is not damaged then paid in cash” (Owner-manager, 5ISBICTMED).

The finance department generates the invoice through Sabre software and emails the confirmed booking with details of the company's bank account. Corporate customers generally pay via electronic bank transfer and inform the organisation by email. According to the Finance Manager:

“Some Pakistani companies do not trust e-commerce because most prefer to pay by cheque or bank transfer” (Finance Manager, 5ISBICTMED).

For 6KHITRVL MED, individual corporate clients sometimes also wish to pay in cash. In such cases, 6KHITRVL MED sends its sales agent to the customer's site with the invoice and the ticket. The agent then collects the cash on delivery payment. The Owner-manager stated that:

“Some corporate customers do not trust e-commerce and prefer to pay in cash rather than transfer money into a bank account because the traditional cash payment method is still considered a secure and faster payment option available in Pakistan ...” (Owner-manager, 6KHITRVL MED).

Pakistani bank charges are high and that the transfer of funds from a buyer account into 6KHITRVL MED account to a financial system takes longer than might be expected. For example, participants said that:

“Some of our corporate clients have avoided paying by bank transfer and interested in cash payments ‘because of the high fees charged by the bank’, while small and medium retailers offer low levels of banking services. Most ‘SMEs do not accept payments by the bank’ because they felt that banks took a long time to transfer money to their accounts” (ICT Manager, and Finance Manager, 6KHITRVL MED).

Sometimes the itinerary with the price (quotation) is generated and given to the customer so they can make the final decision. Follow-up phone calls are also made to convince the customer to place the order if it is not placed when they are visit. Most walk-in customers return to the organisation after receiving some discounts and then finalise the transaction by paying cash. The Finance Manager noted that:

“This cash payment method is a major cultural factor in Pakistan that has a significant impact on the consumer's intention to make purchases” (Finance Manager, 6KHITRVL MED).

The Accounts Officer from 7KHRHTLMED said that for companies, they have different payment options to make the payment on the spot in cash, by bank card (credit/debit) or by transfer to the Owner-manager's bank account:

"However, most transit and domestic guests prefer to pay on arrival in cash after viewing the hotel" (Accounts Officer, 7LHRHTLMED).

On the other hand, individual owners of different companies can reserve their rooms directly by calling the Owner-manager and is referred to as a relationship sale. The Admin Officer noted that the business owners sent by the Owner-manager always paid by transferring money to the Owner-manager's account or by on site credit/debit card. The Owner-manager confirmed the views of the Admin and Accounts Officer and indicated that payments by bank card or conventional bank transfer (on-site electronic funds transfer method) were only available to business clients and individual owners, and were not accepted for individuals and domestic customers due to security concerns. He explained:

"Businesses and individual owners are reliable customers (I know most of them) with registered bank debit/credit cards. 'They know how to use cards and transfer money from their bank account to my account (owner) via wire transfer'. However, local and national clients are not reliable (we do not know them) and do not know how to use bank cards. We have caught many customers using their family and friends' cards and entered an incorrect PIN code that blocked their card at the front desk. 'Because of card frauds, clear instructions were given to Finance and Administration/ Receptionist officers do not take credit/debit cards or bank payments from these customers and must respect our cash payment contract'" (Owner-manager, 7LHRHTLSML).

After the final payment is received from the customers, regardless of the method, admin officer transfers all necessary information, including the customer's payment method and contact information (telephone numbers and personal/company address) to accounts officer by email to save the record of each transaction in the TALLY accounting software. However, bank payments require additional time to be cleared by the local bank. One of the respondents talked about bank payments as follows:

"The local bank takes between 1 and 2 business days to settle payments with credit/debit card and payments in bank accounts usually take between 3 and 7 business days. Sometimes it takes more time if the payment is made on Friday or in certain situations if a bank account has not been confirmed ..." (Accounts Officer, 7LHRHTLSML).

For 8LHRMANUMED, participants confirmed that ICT devices offer some companies the advantage of paying their accounts by electronic bank transfer, cheque or cash in person at the local bank. 8LHRMANUMED has used digital electronic services such as the electronic transfer of funds via ERP software without the direct intervention of bank staff to receive and send payments to business partners and suppliers. The finance department

also uses a method of electronic funds transfer via ERP software for internal payroll operations. However, the Marketing Manager stated:

“Since we do not have any means of payment on the website, wire transfers, cheque and in-person cash payments are widely accepted in the organisation, after physical verification of customer spare parts, to match at the size of the old part, which hinders e-commerce transaction process” (Marketing Director, 8LHRMANUMED).

7.7.3.4 Technological Awareness and Education in Society

For e-commerce transactions, enough knowledge to use digital payments is also required and, as previously noted, at 2ISBTICKSML the majority of the clients are seeking unskilled jobs in the Middle East. In addition, most individual customers do not know how to use debit/credit cards. All transactions of such individual customers were thus received in cash and no credit card or wire transfer facility were available. All the interview participants asserted that:

“Due to a smaller organisation, we do not take any ‘risk of payment’ when we serve individual and walk-in customers because ‘most customers do not have credit/debit cards and the knowledge to make payments by card at the time of purchase’. We, therefore, rely on ‘cash transactions’ ... (Owner-manager, 2ISBTICKSML).

On the other hand, corporate clients could use bank transfer digital payment in addition to cash payment. As discussed earlier, corporate clients mostly preferred to communicate through emails, therefore, the sales team mainly sent and received information by email. If the corporate client was happy then the owner or co-owner contacted the corporate client for the final payment. Participants stated that:

“Corporate clients prefer to pay via ‘bank transfers’ because they know how to use the digital banking systems and transferring devices, but sometimes they also interested in paying by ‘cash’. We trusted our corporate clients; that is why we allowed our sales team to collect payments through ‘cash or bank transfer’ from corporate clients” (Owner-manager and Co-owner/manager, 2ISBTICKSML).

Another participant further added that e-commerce takes time to establish itself in an organisation, but that in the next two years all businesses will use e-commerce and 2ISBTICKSML was seeing a steady development of an e-commerce infrastructure. The Accounts Officer concurred with these views and indicated that:

“Most customers are unaware of innovative business techniques and prefer the traditional version of the business based on verbal correspondence and face-to-face relationships. As a result, management has not been able to adopt modern communication channels and develop e-commerce systems” (Accounts Officer, 2ISBTICKSML).

Local communities also have a positive or negative impact on the successful adoption of an organisational e-commerce project. Pakistan is a developing economy, and most of its

citizens do not have the computer skills necessary to use ICT-related devices and software to conduct online transactions and place orders. The Owner-manager shared the experiences of his corporate clients:

“Most online customers are not mature enough to use e-commerce applications when browsing online. More importantly, customers do not fully understand the English web content ... the problematic languages of the web page and the digital information provided by the organisation on the website. Besides, product information is sometimes not clear and understandable ... so that customers can easily place the order via the e-commerce channel” (Owner-manager, client example, 3ISBMANUMED).

For 5ISBICTMED, as soon as order information is received on the website, the confirmation email is sent to the customer with the details of the order number and the delivery time of the order. At the same time, the sales and support team also call the customer and verify the order with the information provided, in particular, the postal delivery address. The sales team plays a crucial role in approving the payment method, either by cash on delivery or digital banking payment channel, as soon as the customer confirms his/her order with a phone call. The Sales and Support Manager explained the reason for the customer's call:

“Sometimes the customer does not know how to navigate the website or its English content due to limited website awareness ... the sales team calls the customer and confirms all the details before processing the final order at the end ...” (Sales and Support Manager, 5ISBICTMED).

In particular, the qualitative data revealed that competitors' prices in the ICT sector are relatively low compared to 5ISBICTMED, as their competitors use traditional sales techniques rather than the internet to sell the products; something which participants agreed with. The consumer does not have much information to place his/her order online and does not have any technical information. Thus, it makes no difference to consumers whether they buy the product online or shop traditionally. The Owner-manager acknowledged that technical skills could improve the 5ISBICTMED portfolio, but that sometimes the complete adoption of technology created a problem in society. He explained this:

“The new technology needs to be user-friendly and users' needs to update them with the latest IT advancement. We have encountered the problems while receiving online orders ... when users do not get them upgraded with new technology” (Owner-manager, 5ISBICTMED).

Participants further acknowledged this:

“While staff in sales and support and logistics is capable of managing online systems, there is also a lack of consumer skills to use the internet, as it takes more time in guiding them how to navigate on the website and transact online” (Sales and Support Manager, and Finance Manager, 5ISBICTMED).

In summary, the environmental contextual factors faced by SMEs are difficult obstacles to overcome because they are not under the control of SME management. These include traditional sales methods, lack of consumer confidence in e-commerce, consumer preference for cash payments on delivery, technological awareness and education of the consumers. Traditional sales methods such as face-to-face contact, relational sales, e-mail and telephone communications seem to be a major obstacle for SMEs wishing to transform traditional methods into e-commerce. Lack of consumer confidence in e-commerce results in cash purchases in a society primarily geared to non-technology conscious consumers.

7.7.4 Extended Individual Contextual Factors

In addition to the three contextual factors of the TOE described above, the individual contextual factors (owner-manager characteristics) are also considered key determinants of SMEs' e-commerce adoption. Therefore, this study extends the TOE model of Tornatzky and Fleischer (1990). SME participants in this qualitative study have argued that staff members occupying managerial positions perform different tasks and most SME tasks are controlled by the owner-managers of the organisation. Their roles should, therefore, be considered in order to find out e-commerce adoption in the context of Pakistan. In the context of Pakistan, a theme extended individual contextual factors influence the adoption of e-commerce is mainly discussed from a perspective (sub-theme) of owner-managers and management characteristics which is further divided into several sub-parts.

7.7.4.1 Owner-managers and Management Characteristics

7.7.4.1.2 Owner-manager Technological Awareness

SME Participants in this study suggested that for e-commerce technologies to be effective, owner-managers and CEOs need to have a practical and reasonable knowledge of new technologies. Qualitative data revealed that owner-manager education also plays a vital role in the adoption of e-commerce, but in 1KHIMANUSML, the Field Marketing Manager believed that the limited technical knowledge (computer ICT literacy) and understanding of e-commerce as a new technology prevented the organisation from adopting the complete structure of e-commerce. The Owner-manager's perception of e-commerce was minimal but he might be encouraged to use e-commerce in his business model if someone is able to increase his awareness and understanding. The Finance Officer further agreed, stating:

“Owner-manager has no interest in adopting e-commerce technology because of the structure and size of the organisation...but as far as I know about the owner-manager, he is not interested in adopting the new e-commerce technology because of the low technological awareness and limited benefits of use” (Finance Officer, 1KHIMANUSML).

Another participant also shared the example of a technological change in the organisation. Last year, a local ICT software company was interested in providing services in terms of biometric assistance, but the Owner-manager refused to take the services even though the service rate was lower than that of competitors. The Accounts Officer explained the reason for this:

“Owner-manager believed that ‘technology systems never bring any change to the organisation’, and if adopted, must provide ‘training to staff members’ to work on new technology systems” (Accounts Officer, 2ISBTICKSML).

The computer literacy of owner-managers and executives played a central role in the adoption of e-commerce projects in the organisation. As 3ISBMANUMED is a medium-sized organisation, the adoption of e-commerce was influenced primarily by owner-manager; nevertheless, the interest or lack thereof of other employees in the organisation has definitely influenced the adoption of e-commerce. The Owner-manager said that although he had provided state of the art computer equipment, which allows many executives and other employees to use the latest tools, some of the most senior executives (older employees) had never expressed interest in working with these new technologies to communicate online with customers. The Marketing Director stated:

“Our head office has 20 employees, including nine most senior executives (older employees), most of whom have been working since 1997 in various departments; they are excellent in their work and useful. However, due to the lack of computer skills and insufficient knowledge of ICT-related devices, they are not able to deal with problems related to ICT ...” (Marketing Director, 3ISBMANUMED).

The development of e-commerce has enabled departments to connect with local and international clients using the latest ICT, such as email, the internet and the social media platform to improve the overall online image of the organisation. However, this new development and adoption of e-commerce is reduced among the organisation's most senior executives (older employees) (and consequently their departments), due to the lack of ICT knowledge and awareness of new technology such as e-commerce.

For 4ISBTRVLSML, during the different phases of the interviews, all participants provided information on the various factors influencing the eventual adoption of e-commerce in the organisation. The main factor that affected the organisation was the degree of technological competence of the owner-manager and his employees. In previous interviews, it was suggested that the Owner-manager and the staff members were not familiar with the use and configuration of ICT computing devices. With both management and staff being unfamiliar with the technology, the organisation would not be able to successfully adopt e-commerce. One of the respondents believed that:

“Staff members, including drivers and tour guides, do not have an adequate IT qualification or an advanced certificate related to computer science ... their lack of IT knowledge affects the successful integration of e-commerce in the organisation” (Finance and Admin Officer, 4ISBTRVLSML).

The Marketing Assistant from same organisation further pointed out that employees had only primary education and had no idea about e-commerce and computer work while the Finance and Admin Officer stated:

“Owner-manager believes that investing in an electronic business is useless and assumes that e-commerce is not reliable for the company ...” (Finance and Admin Officer, 4ISBTRVLSML).

From 5ISBICTMED, one of the respondents added that, although the organisation has the technical ICT capability to implement an e-commerce project fully, it has limited human ICT capability. Indeed, the poor e-commerce awareness and computer literacy on the part of the managers has affected the Owner-manager's decision to integrate e-commerce fully. Many SMEs in the country still lack staff competent to use ICT technical devices and manage websites to receive online orders from potential customers. The qualitative data also shows that in some of the departments, 5ISBICTMED does not have a dedicated technical team to monitor and upgrade the systems and this has a negative impact on e-commerce projects. The Finance Manager endorsed these views:

“We have a dedicated team in some departments that are fully capable of using systems and operating e-commerce software through their knowledge of the information system. However, I have found that in some areas, most employees are still reluctant to use online tools. The problem is ... I think they do not have enough computer and technical knowledge to use online tools and preferred manual systems” (Finance Manager, 5ISBICTMED).

The data from another case 6KHITRVLMED also show that in Pakistan, employees of many travel agencies, including 6KHITRVLMED, prefer to work manually without the intervention of new ICT devices and online tools. In 6KHITRVLMED, the same trend has been observed in the marketing and HR departments. For example, marketing sales agents visit customers and provide them with the necessary information about the organisation's travel and vacation packages. One of the reasons explained by the ICT Manager was that:

“Most sales and administration staff members do not have technical training (computer skills) and do not trust their ability to use online tools. They prefer to communicate face-to-face and then forward the final requests of customers to ICT and marketing managers to generate tickets and finalise reservations on software” (ICT Manager, 6KHITRVLMED).

In 7LHRHTLSML, it was found that the technical training and computer skills of owner-manager in the use of online systems to support e-commerce are insufficient. Due to a lack of computer training, owner-manager and other staff members showed a poor

understanding of what e-commerce would mean for 7LHRHTLSML. The Admin Officer believed that:

“Most staff members are generally less educated and have no specialisation in ICT and e-commerce services” (Admin Officer, 7LHRHTLSML).

7.7.4.3 Top Management and Senior Employees’ Enthusiasm

The data showed that technological change could result in a change in the overall structure of the organisation's activities, including the environment and work structure, positions and roles and responsibilities – or in the loss of manual jobs if the organisation does not wish to train staff members at their posts. Executives should provide training, explain the generality of innovation, including e-commerce, and its impact on employees, and ensure that management associates employees with the project; actions which facilitate its adoption. However, participants in 2ISBTICKSML believed that the senior employees’ enthusiasm in various departments regarding the use of e-commerce was similar to that of top management.

The Owner-manager's ICT knowledge also contributed to the adoption of e-commerce and had a positive impact on the successful adoption of e-commerce in the organisation. One significant contribution was the development of an e-commerce website, fully developed and adopted in 2016. With financial support and the owner-manager’s commitment to the adoption of e-commerce, the ICT department launched the website for online customers. Both respondents from the same organisation agreed that:

“Owner-manager has been ‘instrumental in changing the organisation's technology environment through his computer literacy’, while promoting e-commerce and its successful development through the Website, making it easier for many clients” (ICT Manager and Marketing Director, 3ISBMANUMED).

The Finance and Admin Officer further agreed:

“Management needs to update all the technological devices needed to support e-commerce ... however, I discovered that owner-manager never showed interest nor enthusiastic in updating the devices and changing the traditional environment towards online systems ... because owner-manager considered the development of e-commerce together with other equipment as an additional expense that is not required at this time ...” (Finance and Admin Officer, 4ISBTRVLSML).

For 5ISBICTMED, participants also agreed that to adopt e-commerce, the company’s ICT systems must be compatible and aligned with the current technical requirements of the market. The organisation also plans to gradually move from manual systems (primarily in the finance and HR departments) to generating online financial reports. However, it will take time to implement such changes, since most finance, HR, sales and technical support senior personnel were still reluctant to use online tools. For example, in the finance

department, most senior executives were still used to generating audit reports manually and did not want to do these online. The Owner-manager supported those views, saying:

"I think the new systems take some time to get used to, and after a while, everyone will be comfortable working on more online devices. However, we must configure the system that suits them (older employees) ..." (Owner-manager, 5ISBICTMED).

During the follow-up interview, another owner-manager from 6KHITRVL MED mentioned his plan to create an online travel agency portal for potential Pakistani and international online customers. He had started working on this, and the test portal was almost ready at the time of the interview. It was mainly an e-commerce portal where a customer can buy travel-related products, such as national and international tickets with hotel accommodation and booking packages for Umrah and Hajj. The ICT Manager stated:

"The test portal will be ready for launch soon but that most of the lower-level executives did not know how to make it work because of their poor computer skills. This lack of skilled workers prevented the management from launching it officially in the organisation" (ICT Manager, 6KHITRVL MED).

Another participant from same organisation also noted that in order to effectively manage the e-commerce portal within the organisation, lower-level executives required training.

"At this point, we have only trained our senior and middle-level executives to run the portal, but this may be the case in the future if top management is interested, we can also train other lower level executives in departments, so they can start working on the online portal" (Finance Manager, 6KHITRVL MED).

The Admin Officer from 7LHRHTLSML noted that staff also need to be motivated to work on e-commerce applications, and such motivation depends on the support of top management. Researcher interactions with different participants showed that firm employees do not want to exchange their manual work for online work. One of the main reasons was the lack of any motivational programme or online training in the organisation.

"Before joining the organisation, frankly, 'we did not want to improve our skills because we used to work on paper instead of using online systems'. Regarding 7LHRHTLSML, owner never motivated us to work on online systems. In the absence of an adequate ICT structure in the organisation, 'employee effectiveness' is very low for e-commerce and related technology projects" (Accounts Officer, and Admin Officer, 7LHRHTLSML).

The analysis of this case showed that e-commerce is a new phenomenon to be adopted by 7LHRHTLSML. The Owner-manager and other participants, including other lower level employees, are traditionally conservative about the adoption of any technology such as e-commerce over other activities in the firm. Thus, they are less open to innovation and creativity and tend to maintain the status quo.

For 8LHRMANUMED, another owner-manager also shared the views expressed by marketing and finance manager about its suppliers, business partners and customers who have not improved their business models enough to be able to trade electronically over the internet. Some companies send orders online and some prefer to call or send faxes. Some are wary of internet technology, their business partners or their employees. The Owner-manager noted that trading partners and suppliers with internet access might think that their employees are wasting their time browsing the internet to use social media pages such as Facebook.

“Some of the purchasing companies are still reluctant to embrace e-commerce and its importance for online work. Many employees of some companies were not online because their top management thought that their employees would abuse the system by sending personal emails, surfing the internet to watch movies and listening to songs on YouTube or chatting on Facebook instead of to work” (Owner-manager, 8LHRMANUMED)

Respondents believed that fear of technology was one of the factors that impeded the transformation to technology. Most employees at the firm believe that because of digitisation, their jobs will be at stake. Therefore, they have tried every possible effort to reject technological change. The Finance Manager also noted the Owner-manager's statement and added:

“The employee did not want to leave his/her comfort zone” (Finance Manager, 8LHRMANUMED).

The Marketing Manager agreed with these views and explained that changes to the workplace in terms of methodology and process sometimes had an impact on the overall performance of the employee. She said that when, for example, senior management decided to implement the ERP system in the company, most employees were afraid of change because they were reluctant to adopt and use the new system. Other employees decided not to accept the system and work on it. According to the Owner-manager, the internal politics of employees and executives of 8LHRMANUMED also has an impact on the e-commerce digitisation project. During the follow-up meetings, it was observed that employees from various departments were opposed to setting up online systems for the following reasons:

“They thought that after the successful execution of online systems, they had to make an extra effort to learn the systems and that it is too late now to learn the new systems ...” (Owner-manager, 8LHRMANUMED).

7.7.4.4 Lack of Training in the Workplace

Most employees prefer to work manually and are not enthusiastic about the adoption of e-commerce due to lack of training in the SMEs. The Accounts Officer from 2ISBTICKSML asserted that:

“Due to the lack of e-commerce training and support from management, the use of e-commerce by the organisation's employees is deficient. Senior managers prefer to work manually, never accompanied or trained to go from traditional to online methods. Therefore, most employees have adopted the same corporate structure and are happy to work in a simple traditional professional environment without the adoption of technological change” (Accounts Officer, 2ISBTICKSML).

Another respondent from 3ISBMANUMED with same views explained that the organisation would be more likely to adopt innovative technologies such as e-commerce if its staff members had the computer skills to run the applications. He stated that:

“I have a dedicated team to monitor and upgrade computer systems to plan and install ICT hardware and software and run readily available for e-commerce and potential online customers. I took all the necessary measures to avoid technological problems and trained the staff to use keyboards. However, in some departments ... some of the most senior executives still hesitate to work on these new technological systems and prefer the methods of manual and traditional work” (Owner-manager, 3ISBMANUMED).

The ICT Manager further confirmed the statement and acknowledged that:

“Some most senior inventory, marketing, customer service and ICT employees felt that the use of the new system is complicated. Also, it takes so much time to complete the task that they can do it quickly by manual work instead of using any system. I think ... we should be providing more training on ICT devices and how to work on e-commerce software, so that they feel more comfortable with keyboarding to ensure a smooth transition of typical practices to the e-commerce function” (ICT Manager, 3ISBMANUMED).

Another reason – cited by respondents from 4ISBTRVLSML – why the traditional environment was unlikely to change completely into an e-commerce environment was that the Owner-manager feared such change. Participants believed that if the Owner-manager successfully adopted e-commerce in the organisation, his control over the company's activities would become limited as he does not understand the new online technology. The Marketing Assistant agreed that the Owner-manager's style is to run the organisation without giving additional incentives to motivate employees to work on computing devices and adopt the technology. The Owner-manager only cares about maximising the company's profits without spending the extra money to update existing systems; or to provide the necessary technical training that would motivate staff members to adopt new online programmes. She noted that:

“Owner-manager never encourages his team on the idea of e-commerce adoption in the organisation and never trained us ...” (Marketing Assistant, 4ISBTRVLSML).

The Sales and Finance Manager from another organisation (5ISBICTMED) further stated that, as computer systems evolved, the expectations and benefits of use were higher from both internal and external partners. However, most employees felt that the level of computer skills and e-commerce skills was insufficient to run basic online applications. Both participants raised the following point:

“In the future, we believe that the organisation will be more efficient in the use of online devices. Currently, the ‘mentality of senior management is not fully aligned with the business model’ that leads to the e-commerce project. As a result, ‘we only make 35 to 45% of online business and rest using traditional methods’. We believe that owner has the opportunity to expand his online business by offering technical training to his employees ...” (Sales and Support Manager, and Finance Manager, 5ISBICTMED).

As discussed in previous interviews, 6KHITRVLMED is a growing organisation with a limited ICT investment budget. Initially, management – including owner-manager – were somewhat reluctant to invest money in training programmes, particularly for lower management, for the adoption of the latest e-commerce software. This is because most ICT training programmes offered by private companies are expensive. The ICT and Finance Managers noted that:

“We should help lower management executives by giving online training, but frankly, we do not update them with the latest technologies such as e-commerce and its associated software ... we can organise training every year, but in the beginning, they need basic guidelines and regular training to work on these systems” (ICT Manager and Finance Manager, 6KHITRVLMED).

Most owners view e-commerce negatively, because they must deal with internal issues such as purchasing new technology devices, implementation and training of the existing staff rather than concentrating on their profit and sales department. The ICT Manager stated:

“Top management has gained success due to the traditional digital methods, but they will also continue their conventional approach and not let any new thing to adopt that would hurt their business and their people. I think ... for the top management, it is superstitious that technological changes like e-commerce harm them if they are fully embraced” (ICT Manager, 6KHITRVLMED).

From 7LHRHTLSML the Admin Officer confirmed these points of view and explained that the culture of using e-commerce technology is widespread among new entrepreneurs and senior managers. In order to adopt e-commerce and work on online systems, training is needed to motivate staff members through owner-manager support, and everyone needs to become familiar with the use of the systems. She noted, however, that the lack of computer training programmes in the organisation sometimes deterred potential employees

from working on online systems. The Accounts Officer also recognised the importance of training programmes in information technology. However, he said:

“ICT training can only be provided to employees if top management is interested and aware of the importance and results, but in our organisation, owner-manager does not know the importance of e-commerce and its related phenomena” (Accounts Officer, 7LHRHTLSML).

During the discussions, the researcher found that owner-manager and the other staff members had a satisfactory perception of what e-commerce entails, even if they encountered several difficulties.

In previous interviews, the Admin Officer acknowledged that employees needed adequate training to use computer systems and their technology-related devices, such as website development and execution, managing email communications and working and understanding of them if they were to embrace e-commerce fully. The Accounts Officer added that the company could not achieve its e-commerce goals without developing the ICT skills of its employees. He believed that:

“Most senior employees can only manage a few necessary items, such as sending and receiving emails, communicating with customers through a telephone and fax system. However, adequate computer training is needed to learn advanced systems” (Accounts Officer, 7LHRHTLSML).

8LHRMANUMED has partially adopted an e-commerce project and manages its activities through computer systems, including ERP software. However, the process of buying online from suppliers and selling products to customers through the online channel is limited. Unlike other automotive companies in the local business environment, operations rely on an appropriate technology management mechanism. However, during the technological adoption at 8LHRMANUMED, various challenges were observed and discussed between the participants in both face-to-face and telephone interviews. The higher the number of senior management and other employees that become computer literate, and familiar with e-commerce and the value of information management, the higher the success of the e-commerce project. The Finance Manager and the Marketing Manager both explained on several occasions that:

“8LHRMANUMED faces challenges in ‘implementing e-commerce systems due to the lack of qualified ICT professionals’ within the organisation. To overcome this problem, ‘management takes the initiative to retain its experienced managers’. Management plans to recruit qualified resources on a contractual basis for each business line. ‘Third-party professionals’ will provide training to the organisation’s employees ... also, explain how to work on online systems, so that they become familiar with the new project” (Finance Manager and Marketing Manager, 8LHRMANUMED).

The analysis of this theme demonstrated that, due to considerable traditional influence of the owner-managers and senior employees with limited technological education, the development of e-commerce in the departments of SMEs is not possible. These participating SMEs are an example of a failure of e-commerce in which employees are discouraged from working in electronic systems and where business depends mostly on traditional methods due to owner/managers characteristics. This lack of knowledge of e-commerce and lack of interest in computer systems on the part of most senior executives has affected the organisation's progress towards e-commerce and has constituted a significant individual obstacle for the innovative owner-managers.

7.8 Role of Government

Many researchers (Al-Somali et al., 2015; Awiagah et al., 2016; Lawrence & Tar, 2010; Martinsons, 2008; Nazir & Zhu, 2018; Seyal et al., 2004) believe that government initiatives play an important role in e-commerce adoption, as they can potentially contribute positively to the development of e-commerce or – more negatively – create barriers. In Pakistan, when interviewed, all SME participants believed that the government plays an important role in developing e-commerce capabilities in any economy. They further believed that although the GoP plays an essential role in the development of various SME policies for the wellbeing of many businesses in the country, many SMEs still lag behind. In this study, the major problems cited within sub-theme – GOP support for e-commerce adoption include absence of legal regulations on e-commerce framework, unstable political and governmental situations and – most crucially – corruption in the GoP. The next section discusses each of the sub-theme within the context of Pakistan.

7.8.1 GOP Support for E-commerce Adoption

7.8.1.1 Legal regulations on E-commerce Framework

Problems of law and order create a perception that government agencies are failing to take action to make e-commerce activities in the country safe. The government should therefore work with SMEs to actively promote e-commerce. The government should, owner-manager from 1KHIMANUSML believes, have exclusive regimes for e-commerce business and provide relaxation in the tax system; which is currently not beneficial for SMEs. The Finance Officer and Field and Marketing Manager suggested that local business associations should take the initiative and propose legislation for an e-commerce framework. The data further show that the GoP has not paid due attention to updating the regulatory policies of e-commerce and ICT industry in the country. The Owner-manager believed that:

“At that time (2016–2018) there was no effective governmental ICT policy to support SMEs to create a favourable technology environment for the acceptance of e-commerce. To meet the need for e-commerce, and to allow Pakistan's SMEs to face technological challenges in the future, the government must take the necessary measures to promote and develop electronic systems by updating the ICT digital policy according to current requirements” (Owner-manager, 1KHIMANUSML).

The qualitative data shows that the GoP has taken an essential step in establishing the National Incubation Centre in Islamabad with the collaboration of public and private partnerships. The government also plans to create more centres in Peshawar, Karachi and Lahore. In the future, the MoITT will launch a project in collaboration with the Universal Services Fund; bringing together SMEs to fully exploit the potential of e-commerce by marketing their products online. The Memorandum of Understanding was signed between Alibaba and local business authorities to promote e-commerce and provide technical training to SMEs for the successful integration of e-commerce applications. 5ISBICTMED is part of this in relation to online activities and the sale of ICT products online in the country. However, in this study the data show that the government has failed to put in place legislation providing businesses with a secure legal framework that allows seller-buyer interactions to be handled securely over the internet. The Owner-manager and Finance Manager both reported that several government agencies – including the SBP, the Chamber of Commerce and the Telecommunication Authorities of Pakistan – were in the process of creating e-commerce legislation to provide an online framework safe and secure to business and individual users. The Sales and Support Manager believed that:

“Because of the monopoly of many stakeholders and the interference of politicians for their benefits, the legislative process would take longer” (Sales and Support Manager, 5ISBICTMED).

The Owner-manager from same organisation added that, in order to improve the overall structure of the e-commerce project in the country, the government should reduce import duties on a particular category of ICT equipment and provide tax incentives by reducing tax rates.

“5ISBICTMED imports quality ICT products from Malaysia, China and Singapore, as the overall quality of local ICT products is not good enough to sell to premium corporate customers. Thus, higher tariffs on products imported from other countries are a key obstacle to the development of the organisation” (Owner-manager, 5ISBICTMED).

The Finance Manager also confirmed that Pakistani SMEs from all sectors battle with a complex administrative, fiscal and legal context; both in terms of start-up and growth.

“Pakistan's tax system is very complex, especially for SMEs, and most ICT companies felt that the real tax rate for SMEs is very high (31%) in Pakistan

compared to other regional players ... which led to the downfall of many companies” (Finance Manager, 5ISBICTMED).

Another owner-manager from 7LHRHTLSML described the role of the federal and provincial governments in taking various technological measures to promote e-commerce in the business environment of local SMEs. He explained that while many companies in Pakistan have experienced an unprecedented growth in e-commerce, the digital economy remains informal and many consumers continue to rely on cash for basic payments. The Accounts Officer explained that Pakistan had successfully witnessed the arrival of 3G/4G technology in 2014. Since then, the e-commerce sector has experienced a sharp increase in its sales volume.

“The arrival of 3G/4G technology in Pakistan had also helped improve internet access in the country. Today more people are using the internet in Pakistan, but they are still reluctant to shop online. As a result of this more considerable increase in internet access, Pakistan has also seen an increase in the number of online retail stores such as Daraz.pk, Olx.pk, Homeshopping.pk, etc. The success of these stores proves that the measures taken by the government can further spread the culture of e-commerce in Pakistan, but consumers still prefer the traditional model of cash payment to financial transactions on the internet. Pakistan remains an economy mainly based on informal means of conducting financial transactions” (Accounts officer, 7LHRHTLSML).

In support of this statement, the Owner-manager and Admin Officer confirmed that:

“The ‘majority of consumers are unfamiliar with e-commerce-based shopping’ and ‘prefer the cash-based approach’ because of ‘unsafe online payment methods’ in the country” (Owner-manager and Admin Officer, 7LHRHTLSML).

The Accounts Officer agreed with these views and said that Pakistan's federal and provincial governments must take legal action to promote e-commerce-based transactions among Pakistan's people and help SMEs realise Pakistan's real potential in the twenty-first century by providing a legal framework for e-commerce. However, at this stage, 7LHRHTLSML, as a hotel firm, is forced to defend itself by using informal means of transaction and without the technical support of the government. All participants felt that:

“Apart from the hospitality sector, 7LHRHTLSML in the country were ‘generally not supported by the government in any form’, which has resulted in the emergence of some ‘large monopolistic hotel chains’ and could eventually shut down the smaller firms” (Owner-manager, Accounts Officer, and Admin Officer, 7LHRHTLSML).

From company 8LHRMANUMED, the Owner-manager explained the role of the government by stating that the GoP has only very recently understood the importance of information technology and e-commerce. He said that the proverb “better late than never” best suited the policy of the government in the context of the development of e-commerce technologies. Policies have been developed for ICT applications that facilitate SMEs and their trading partners. However, the Owner-manager remained uncertain whether the government's

interest in digitising e-commerce was an obstacle or a driver to the successful implementation of the e-commerce project; as the government had begun to take steps towards the technology policy management only after the year 2000. There is still no regularity authority in the country that encourages businesses to use e-commerce technology practices to remain competitive on a global scale. The Finance Manager went on to explain that since the establishment of government bodies including the MoITT, the government has also demonstrated its commitment to play a legitimate and decisive leadership role in the setting up of an e-commerce infrastructure to digitise its economy. The Marketing Manager added that the influence of local and provincial governments on the business environment affects the adoption rate of a country's e-commerce:

“Government e-commerce policies to improve the economy are one of the driving forces behind e-commerce. However, from e-commerce, I do not think the government is doing anything ... to promote e-commerce (environment) in the country because, from my point of view, I think the government has not adequate policy on e-commerce ...” (Marketing Manager, 8LHRMANUMED).

Through direct intervention, governments have a considerable impact on the level of penetration and use of the internet. External change agents that can influence the adoption of e-commerce include organisational advisors, government, external consultants, and e-commerce solution providers. The Owner-manager added that electronic payments and receipts should be protected and a standard/certified integrated payment gateway mechanism available in the country, in collaboration with local banks and online companies:

“Banks should have adhered to the policies and compliance mandated by the ministry of information and communication technology to facilitate the e-commerce payment mechanism” (Owner-manager, 8LHRMANUMED).

7.8.1.2 Political and Governmental Situations

The compatibility of e-commerce with the current ICT infrastructure is essential to ensure the successful implementation of e-commerce. In Pakistan, many ICT providers or suppliers belong to large and multinational companies that trade in USD and provide ICT hardware and equipment supporting e-commerce projects in the same currency due to the shortage of local manufacturers. In addition, most suppliers import ICT equipment from different countries and it is very expensive to buy, particularly for SMEs. Owner-managers added that the USD's price fluctuates daily depending on the political and economic situation of the country. Hence, the cost of ICT units are gradually increasing in the country. Another critical factor affecting the organisation is a poor return on investment:

“Even if we invest heavily in the implementation of the e-commerce project, the investment rate is meagre. Therefore, when the return or profit is not desirable (even after the implementation of e-commerce), management is reluctant to fully embrace

the idea of e-commerce in the organisation with the installation of very expensive ICT devices” (Finance Manager, 6KHITRVLMD).

3ISBMANUMED has thus never received the bank infrastructure loan it needs to further improve its overall e-commerce capacity across the organisation. Its owner-manager stated the main reason was that:

“There is no permanent legal framework for the adoption of e-commerce by SMEs because of the political and economic instability in the country. When the government changes, the framework of each ministry, especially commerce, also changes which affect the local business community” (Owner-manager, 3ISBMANUMED).

In a developing economy like Pakistan, the government's role has not actively enabled the development of e-commerce initiatives. Government and private agencies organise limited government programmes and technological training and awareness workshops, but only in urban areas, making access to this type of training for SMEs in rural areas and small towns very complicated. Governments often take the responsibility for increasing technological awareness, such as e-commerce among SMEs, but in Pakistan, respondents believed that:

“Due to many ‘internal political problems and the monopoly of state departments’, ‘the GoP is not paying enough attention to the technology sector and taking initiatives to promote awareness of e-commerce in society and especially among consumers’ that supports many SMEs to develop e-commerce strategies ...” (Owner-manager, and Finance and Admin Officer, 4ISBTRVLSML).

The GoP promotes e-commerce and the ICT environment in the country by organising various technical training programmes. However, according to owner-manager, since Pakistan is a developing economy, many governments and private technical institutes charge high amounts for training. SMEs cannot afford these training courses, and therefore get no benefit from them. Many e-commerce training companies in the country are owned and operated by large private sector organisations with local and provincial government playing only a minimal role. In general, the government institute SMEDA only helps if a company requires a licences. Beyond this, however, the government institutes do not provide any additional technological advantage to SMEs attempting to adopt e-commerce business activities. All the interviewees agreed that:

“Even if a subsidy is needed, the government generally sticks to the POS, ‘the process of obtaining a benefit from the government is very long and time-consuming’, which is why private travelling sector companies, including 6KHITRVLMD, follow the ‘usual standard procedures’ without any government support” (Owner-manager, ICT Manager, and Finance Manager, 6KHITRVLMD).

Data collected during the interview phases also showed that Pakistan has been one of the biggest victims of the unprecedented rise in global terrorism. The country has suffered the

most significant number of casualties and economic losses compared to any other country in the world. At this point, owner-manager said that with the considerable number of incidents and losses related to terrorism, international tourism in Pakistan must suffer, as was the case in small hotel industries. Therefore:

“Hospitality companies have experienced the worst economic crisis, and the question of using innovative means, such as e-commerce, to provide better quality services has become a distant issue” (Owner-manager, 7LHRHTLSML).

7.8.1.3 Corruption in the GOP

The evidence suggests that promoting access to information, transparency, accountability and anti-corruption in government services offers businesses the opportunity to engage in e-commerce activities. Analysis of the data from this study reveals that corruption is a significant problem in Pakistan, particularly in government departments and associated institutes. Due to corruption, new ICT vendors struggle to create start-ups which would make it easier for SMEs to undertake ICT activities that support e-commerce. For a smaller organisation such as 2ISBTICKSML, it is difficult to obtain a No Objection Certificate from the government in some instances because of corruption and favouritism, and the authorities have misused the goods and public services to their advantage. Therefore, co-owner/manager believes that the government should create a favourable business environment for Pakistan's SMEs and eliminate unnecessary environmental barriers – such as strict technology adoption policies – by creating a useful legal and technological framework for successful adoption of e-commerce. All the participants concurred:

“Illegal practices in the business environment of Pakistan, in any form, hinder the technological development of SMEs. This concerns not only SMEs but also one of the reasons for ‘reducing opportunities for growth, production and employment in SMEs’. With corruption ... ‘the cost of ICT infrastructure’ linked to the expansion of SMEs is increasing and constitutes a major obstacle to the development of SME e-commerce in Pakistan” (Owner-manager, Co-owner/manager and Accounts Officer, 2ISBTICKSML).

After the GoP's introduction of numerous ICT policies in 2014, the information technology sector became the fastest growing sector in the country (Rahman, 2017). However, the Field Marketing Manager believes that:

“Although the GoP plays a crucial role in deploying the ICT sector in the country...training and control side has been misused by the authorities” (Field Marketing Manager, 1KHIMANUSML).

Shabbir (2017) confirmed that corruption in departments has influenced the development of SMEs in the country. 1KHIMANUSML is also facing a problem of corruption in the local business environment of Pakistan. Many government ministries are involved in corruption

that affects the real growth of the organisation e-commerce capabilities. Therefore, all the participants asserted that:

“It is necessary for the GoP to eliminate ‘environmental barriers’ to create a favourable business environment for SMEs to work and grow in a stable e-commerce market economy” (Owner-manager, Finance Officer and Field Marketing Manager, 1KHIMANUSML).

It is therefore argued that the GOP e-commerce initiatives are at an early stage and take time for them to be fully implemented in Pakistan. The technological benefits received from the GOP for SMEs are still far away and require a lot of attention and support from the government authorities.

7.9 Support of Local Business Institutes

This study examines the recent role of the GoP and local business institutions in raising awareness of the adoption of innovative technologies including e-commerce in SMEs of various sectors in the country (Nazir & Zhu, 2018). Participants in the SMEs participating in this study have repeatedly explained that support from local business institutions as a major theme would make it easier for many companies in the country to adopt e-commerce. Qualitative evidence shows that the higher the support of local institutions created, the more likely local businesses, including SMEs, are to adopt the latest innovative technologies such as e-commerce. Participants then highlighted a sub-theme – institutional assistance for the e-commerce adoption which further divided into different parts such as access to finance for SMEs and the favouritism of local business institutions that could influence decisions to adopt or not adopt e-commerce in the commercial context of Pakistan.

7.9.1 Institutional Assistance for the SMEs’ E-commerce Adoption

7.9.1.1 Access to Finance for SMEs

The data showed that with the support of bank loans, SMEs can improve their overall commercial structure, and with technology loans, many can adopt the latest technologies that support e-commerce. In other words, these loans contribute to their growth (and thus, growth of the economy). However, Pakistani SMEs – known to be the backbone of Pakistan's economy – remain excluded from the financial sector. The Marketing Director said that the country's commercial banks do not want to lend to SMEs owners because they have neither liquid assets nor a good credit history. The ICT Manager added:

“For commercial banks SME financing is considered a risky option, and many banks feel that SMEs are poorly structured organisations – since most operate in the informal sector” (ICT manager, 3ISBMANUMED).

The Owner-manager from same organisation explained that SMEs contribute significantly to GDP in terms of job creation and have a positive impact on imports and the country's growth. However, influenced by the reluctance of banks to support SMEs, the GoP has not formulated any policy to ensure SMEs have access to finance. The banks are, in fact, reluctant to grant conventional infrastructure loans to SMEs for fear of losing money. The Marketing Director concurred with these views:

“Some private banks, such as Microfinance Bank , have been allowed to lend PKR 1 million to micro or small companies, but if the central bank provides them with ‘regulatory space’ by initially allowing them to finance a company requiring cash up to PKR 10 million and then, by gradually increasing the funding, they can also lend money to medium-sized organisations. With an adequate banking policy by the central bank, strengthen the financing of SMEs. However, the ‘lack of banking accesses’ to obtain financing continues to be an essential factor that impedes the growth of the e-commerce sector in SMEs ...” (Marketing Director, 3ISBMANUMED).

During the final stages of the interview at 1KHIMANUSML, respondents further stated that in the business sector, there were no appropriate local government associations who could provide reasonable assistance to companies in their e-commerce development. In addition, although some private associations work in Pakistan, their memberships are not considered to be affordable for 1KHIMANUSML. On the other hand, the Owner-manager did acknowledge that:

“Several local specialised banks work individually in small and medium financing, such as SME bank, Khushali Bank, Kashaf Microfinance Bank and Tameer Microfinance Bank. These banks support the SME sector by helping them to access credit from formal sectors in order to improve the overall technological e-readiness necessary for the e-commerce process” (Owner-manager, 1KHIMANUSML).

However, access to credit for the full development and progress of e-commerce is impeded by the inappropriate regulatory environment and existing prudential bank regulations for SMEs (Abrar-ul-Haq et al., 2015).

In face-to-face interactions, participants of 4ISBTRVLSML explained the role of local business institutes such as SMEDA, the local Chamber of Commerce and the SBP as a financial institution. Local institutes can play a vital role in the deployment of SMEs in any economy. Both financial institutions and SMEDA play an indispensable role in the overall development of SMEs in the country. However, despite all the efforts made by the local and financial institutes for SMEs, 4ISBTRVLSML was not yet affiliated with any financial and local institutions to support the development of e-commerce and update its ICT devices. The Owner-manager gave the following reason:

“Due to the rigorous and complex lending policies of local financing institutions for small business, 4ISBTRVLSML had never received any financial and legal support

to improve the overall technological structure of the organisation” (Owner-manager, 4ISBTRVLSML).

A local Chamber of Commerce was established in the city, but owner-manager had never heard that the institute was working in the technology sector to improve SMEs. 4ISBTRVLSML was interested in obtaining the support of local and financial institutions. However, all the participants believed that this was not possible since:

“Due to ‘political interference’ in financial institutes and the ‘lack of a legal, financial framework on the part of the government for SMEs’, banks ‘hesitate to provide infrastructural loans to new entrepreneurs’ for the development of their SMEs ...” (Owner-manager, Finance and Admin Officer, and Marketing Assistant, 4ISBTRVLSML).

7.9.1.2 Favouritism by Local Business Institutions

The national institute, SMEDA, works towards the development and betterment of SMEs in the country. However, at the time of the interviews 1KHIMANUSML was not a registered member of SMEDA. The Owner-manager and Finance Officer both stated that they are registered with the Securities and Exchange Commission of Pakistan (SECP) regarding tax contribution to the economy. However, due to their unfavourable policies, they have never contacted SMEDA, nor have they received any technological development assistance. Other respondents explained one of the primary reasons:

“The focus of SMEDA officials is always on large organisations ... looking for their advantages regarding ‘corruption and bribery’ and therefore, mostly ignore SMEs as a lower bracket with limited capital organisations. With these, there is no point to contact SMEDA and follow their strict policies” (Field Marketing Manager, 1KHIMANUSML).

The government plays a vital role in the implementation of e-commerce by taking various technological initiatives in the country. In Pakistan, one example was the creation of ICT software technology parks (STPs) to facilitate ICT for the growth of local businesses and to promote entrepreneurship. In 2ISBTICKSML, the Owner-manager said that the government had established such a park at a trade centre in the town. In an initial step taken by the government, multiple STPs facilitate ICT innovation such as e-commerce and provide a stable and reliable ICT infrastructure to companies. However, the Owner-manager noted that STPs were mainly focused on providing technology services to foreign customers (outside of Pakistan) and work mainly through freelancers. The STPs did not target local industry and did not focus on domestic production and small organisations. Both the Accounts Officer and the Co-owner/manager further stated that:

“We do not believe that ‘SMEs and local business are on the government’s list of STPs’. Local business and SMEs need technology incubation centres in each district

... where their technology needs can be met for the 'development of ICT infrastructure' ... provides a 'legal framework for successful integration of e-commerce'. However, we think that because of the 'favouritism of large and foreign companies', government institutions neglect SMEs" (Accounts Officer and Co-owner/manager, 2ISBTICKSML).

Respondents from 3ISBMANUMED argued that the government plays a vital role in creating and promoting new technologies and raising awareness of society. Governments have put numerous technology platforms at the disposal of organisations across the country, enabling businesses to adopt new management methods. SMEDA, a government institute, motivated many organisations to change traditional methods into electronic systems for the growth of the sector. However, according to the Marketing Director, SMEDA sometimes neglects SMEs because of the monopoly of large organisations and multinational companies. The Owner-manager added:

"Favouritism and dishonesty within SMEDA have been involved at different levels to improve the ICT infrastructure policy for the affected SMEs in the country. The majority of public officials who participate in the use of SME selection criteria according to their wishes and have favoured the opportunistic owners of large organisations, while meritorious SMEs, directly or indirectly from the affected areas, have been ignored ..." (Owner-manager, 3ISBMANUMED).

From 5ISBICTMED, participants believed that in Pakistan, a company receives specific benefits if it is registered in local institutes such as the Chamber of Commerce, SMEDA, SECP and Pakistan Support Export Board. In the ICT industry, certain litigation requires the management of hardware and software activities in the country, and it is imperative that these companies be registered in local institutes related to their sector. The Owner-manager stated:

"5ISBICTMED is a registered member of SMEDA, Ministry of Commerce and SECP to adopt and implement new technology policies within the organisation, supporting institutional training workshops and organisational development seminars" (Owner-manager, 5ISBICTMED).

Similarly, 7LHRHTLSML is also a member of the Chamber of Commerce, SECP, SMEDA and the SBP. Every hotel company must be affiliated with the local business institute before starting business activities in the country. Although 7LHRHTLSML is not as developed as it should be, the organisation still has a commercial license and is registered with the SECP, which is Pakistan's legal entity for hotel operators. The Chamber of Commerce supports recognition once the hotel is listed with them by preventing another person from using a name that is already in use. The Owner-manager confirmed, however, that:

"This does not have a direct impact on e-business adoption decisions in the company" (Owner-manager, 7LHRHTLSML).

Regarding SMEDA and the SBP, the Accounts Officer stated:

“There was no direct support received from these local institutes for cheap technology loans for the modernisation of ICT systems, which would contribute to the successful development of the e-commerce project in the organisation” (Accounts Officer, 7LHRHTLSML).

It was learned that the business generally relies on owner-manager's contacts with clients and individual owners and on “word of mouth” to market various products and services in the local business environment.

8LHRMANUMED subscribes to the Pakistan Automotive Manufacturers Association, the Chamber of Commerce and SECP. All these provide assistance to SMEs in the automotive sector, but none of them has assisted 8LHRMANUMED's technology development in e-commerce. Despite the administrative support of different local business institutes and regulatory agencies in Pakistan, the local business environment is still bound to perform its activities through traditional methods. The Owner-manager confirmed that:

“The sale of goods in the country is more likely by traditional methods (personal contacts and relational selling), sometimes by word of mouth, and through tenders and the least likely by electronic marketing. However, the trend of e-commerce is growing enormously in the country, but only a few large sectors heavily rely on it” (Owner-manager, 8KHRMANUMED).

A theme related to support for local business institution shows that several institutes work for the benefit of SMEs, which handles requests from various organisations and allows the organisation to seek administrative assistance, but has never benefited from technological support, such as support for e-commerce. Beyond this, however, the local institutes do not provide any additional technological advantage to SMEs attempting to adopt e-commerce business activities.

7.10 Summary

This chapter examined various cases of e-commerce adoption in the eight selected SMEs. To present each case, six themes and sub-themes made it possible to define each case according to the conceptual framework. The six themes described in this chapter were: overall characteristics and situation of SMEs, usage of ICT infrastructure units, role of owner-managers, factors affecting the adoption of e-commerce, the role of the GoP, and lastly, support of various local business institutes. Each of the themes were presented with a summary and conclusion of its findings. The next chapter will discuss these findings further and draw conclusions for this study as a whole.

Chapter 8: Findings and Discussions

8.0 Introduction

The purpose of this chapter is to describe and interpret the data analysis results of the eight cases under study through cross-case analysis and comparison with the findings of the literature review. The approach adopted in this chapter is to explain any new understandings or new insights that emerge from this study and attempt to compare the results of this study with those of previous studies. The first section discusses the general characteristics and current situation within each SME under study to provide up-to-date information on the development of e-commerce within each organisation. The second section analyses the quality and availability of the latest ICT infrastructure (hardware and software) units in each SME to support the development and adoption of an e-commerce project. Then, the third section discusses the role of owner-managers and the attitude of management towards the adoption of e-commerce. The fourth section analyses various adoption factors based on broad technological, organisational, environmental and individual contexts that affect the adoption of e-commerce within each SME; as revealed by the empirical results. The final section of this chapter discusses the application of e-commerce adoption theories to the results of this study, and is followed by a review of the role of government and the support of local commercial institutions. A summary and conclusion are presented in the last part of the chapter.

8.1 Overall Characteristics and Situation of SMEs

The general characteristics and overall situation of SMEs define the business purpose of each SME and the organisational structure for carrying out e-commerce projects. These will now be covered in relation to each case study.

8.1.1 Summary of the Individual SME's E-commerce Adoption Environment

8.1.1.1 *1KHIMANUSML*

The first case is the small company that mainly manufactures wooden vanity and kitchen units. Due to the smaller size of the organisation with a flat hierarchy, the use of the latest ICT devices is not fully developed to facilitate e-commerce projects. Tools, including PESTAL software, are used primarily in the warehouse and financial departments to execute and control the financial and administrative functions of the organisation. However, some of the latest hardware ICT devices can be found in the manufacturing and production departments; allowing the department to manage the production process smoothly.

Externally, the internet is only used to send and receive official emails and to send quotes to customers. Internally, communication between employees is done using digital network devices – including mobile phones and WhatsApp. Since the organisation does not have an active website, its e-commerce use can be summarised as: email and Web 2.0 social media tools such as Facebook for marketing products and services. Without electronic sales channels, the company primarily uses traditional sales methods to sell products and communicate with customers and subsequently, orders are confirmed by phone and/or email. In relation to payment, face-to-face and offline cash payments are preferred as the most common sales techniques. The company has not received support from local business institutes and government for the organisational development of e-commerce.

8.1.1.2 2ISBTICKSML

The second case is a small ticket and tourism organisation which includes the provision of visa assistance to local customers wishing to travel to Europe and some Middle Eastern countries. The organisation does not have the latest ICT devices, official departments, or adequate levels of administration because it centralises decision-making with the owner. The company has basic ICT infrastructure and technology applications that allow it to perform its day-to-day business activities. It does use some of the latest booking software such as Galileo, World Span, Sabre and Abacus; which are controlled by the sales team and owner-managers. The staff communicate with customers mainly by email, fax and phone. Since the company does not have an active website, no complete e-commerce transaction system is available, and most customer transactions are face-to-face. As a result, the organisation relies primarily on traditional cash payments and customers can pay by digital bank transfer directly to the owner-managers bank account only after an interaction at the office. The fact that owner-manager relies on traditional sales techniques also limits the progress of e-commerce in the firm. The nature of e-commerce within this SME can be therefore be summarised as use of e-commerce by email.

8.1.1.3 3ISBMANUMED

The third case is a medium-sized company that manufactures a variety of instruments (including medical and veterinary) as well as sports and outdoor clothing, riding kit and beauty tools. Its market is predominantly Italian consumers in Europe and Pakistan. The company has the latest ICT units (hardware and software) and enough financial resources to perform a variety of tasks. However, during the installation phase of the Magento 2 e-commerce software, management have been faced with the problem of a lack of qualified ICT personnel who can configure the software quickly according to the needs of the business. The company has a website to receive online orders but has limited digital

payment facilities available on the site and only a small number of Pakistani consumers have visited the website; their visits solely being to obtain the necessary information on products and services. Most customers prefer to communicate by phone and like to physically check manufacturing products and pay in cash through offline channels. However, the company can only receive digital credit card transactions made by its Italian-European customers. The owner and top executives of some of the departments are enthusiastic about the adoption of e-commerce, and its full development within the organisation. However, due to a lack of e-business awareness and computer literacy among most senior executives (who are generally older employees), the adoption and use of e-commerce applications is still minimal. Many senior employees still prefer to communicate with customers through traditional channels and are reluctant to work using computers at all. The general nature of e-commerce at 3ISBMANUMED can be described using internet email, telecommerce and the website via the Magento 2 online software.

8.1.1.4 4ISBTRVLSML

The fourth case concerns a small tourism and travel organisation that has been operational since 2007. The company does not have a large business implementation structure when compared to a medium or large organisation. Each department operates in a simple flat hierarchy, controlled primarily by the owner. ICT, financial and technical skills are lacking and there is no ICT or marketing department. The ICT unit is not fully developed and needs more progress as the company uses obsolete ICT hardware devices that need to be modified and replaced. The reservation software is not operational in the organisation because of the unavailability of affordable commercial software in the country for small businesses. Without the availability of e-commerce software and a website to receive online orders, the development of business e-commerce can be described according to traditional selling methods, including email. ICT devices are only used for the management of financial and consumer data, and the use of email for communication purposes and its current e-commerce initiatives. The company's website was not developed in the early years due to a number of issues; mainly related to owner-manager support (insufficient for website development), lack of a legal framework (the absence of e-commerce legal and regulatory e-payment framework policies by the government), traditional sales methods (customer preference for traditional sales methods - face-to-face personal contact, relationship selling and cash payments) and the lack of preparation of the country's local business environment.

8.1.1.5 5ISBICTMED

The fifth case is a medium-sized ICT firm, active since 2006. Unsurprisingly – given the nature of the business – there are various ICT applications available, including an ERP

system, as well as enough human and technical skills to perform tasks and undertake other e-commerce business development projects. However, because of the individual characteristics of employees, the success rate of e-commerce in other departments is limited despite the company having an active website to market its products and services and for placing orders. The nature of the company's e-commerce is therefore similar to that of 3ISBMANUMED and can be described as the use of email, tele-commerce and website via ERP software. However, traditional sales methods in the local business environment – including cash on delivery – affect the full integration of e-commerce functionality into the organisation. Other internal and external factors helped the company's management to develop e-commerce to some extent. For example, interaction with government agencies and affiliations with local business institutes is seen as a driving force for its future development of e-commerce.

8.1.1.6 6KHITRVLMED

The sixth case concerns a medium-sized tourism and ticketing organisation that sells national and international air travel tickets as well as arranging holiday packages for B2B, B2C and individual customers. The company has the latest ICT unit that supports e-commerce across departments. Broadband internet with an updated Windows operating systems is installed and management uses Sabre Power Suite and Galileo software; designed explicitly for booking and accounting purposes. The website is primarily used for the marketing of products and services and to provide the necessary information about the history of the organisation, the details of each department and details of vacation packages. Currently, because of technological factors payment is not available via the website, which is a significant barrier to receiving orders online. As a medium-sized organization, 6KHITRVLMED has a subsidiary (sister company) but does not have communication software. In addition, for communication with business partners such as hotels and suppliers, 6KHITRVLMED only uses Skype and telephones to communicate with its business partners. These traditional methods of communication are very common in Pakistan's local business environment and have been adopted by many companies to carry out their activities. Therefore, the overall e-commerce environment in the organisation can be described as internet email and tele-commerce.

8.1.1.7 7LHRHTLSML

7LHRHTLSML is part of the small hospitality sector and has been providing its services since 2012. The general business situation of the company is traditional, as most of its clients are, domestic (other cities within Pakistan), local (within the city it is based) or individual business owners who visit the city of Lahore for leisure and business purposes.

The company does not have sophisticated ICT systems on which to base e-commerce decisions; ICT, financial and technical skills are lacking and it does not have either an ICT or a marketing department. Its use of e-commerce can be described as low to moderate as email and internet fax are used primarily by only a few staff members – including the owner and the administrator/receptionist. The company uses “TALLY accounting” software which is also controlled by only a few personnel, including the owner. Concerning e-commerce web applications, the company has no website as management believes in a traditional personal relationship rather than relying heavily on communication devices. Therefore, the type of e-commerce used in the business can be described as B2B, B2C, B2E commerce, internet email, fax and telephone or mobile commerce.

8.1.1.8 8LHRMANUMED

8LHRMANUMED is a medium-sized auto parts manufacturing company located in the industrial city of Lahore and in operation since 2003. The primary objective of the organisation is to manufacture automotive parts and sell to the national market through distributors and suppliers. As the organisation has a latest ICT unit, the use of e-commerce applications in the business structure is moderate and management relies heavily on Microsoft Outlook as an email tool. Through this Microsoft email account, management communicate with internal employees and external customers. The use of tele-commerce is also popular for communicating with staff, business partners and suppliers. The company's website is primarily intended to provide general information about the company and to market its products and services; only contributing minimally to the adoption of e-commerce as a marketing channel. Reliance on the GoP and the bidding system to sell the products is also a limitation on the advancement of e-commerce applications in the company. Therefore, the types of e-commerce used in the business can be described as internet email, fax and tele-commerce (including mobile devices).

8.1.2 Organisational Structures

During visits to the organisations, it was observed that the smaller firms (which includes 1KHIMANUSML, 2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML) have informal structures (without adequate departments and staff). This supports the results of previous studies (e.g., Ghobakhloo & Tang, 2013; Kartiwi et al., 2018; Rahayu & Day, 2015; Simpson & Docherty, 2004). These researchers found that in developing economies, the size of the SME provides a clear indication of the adoption resources available within organisations – since the size and structure of the company have a positive influence on SMEs' e-commerce adoption. The results of this study show that most small SMEs have limited departments with a simple and direct hierarchical structure and operate in a single city with a central

office. On the other hand, medium-sized manufacturing, ICT and hospitality organisations such as 3ISBMANUMED, 5ISBICTMED, 6KHITRVLMED and 8LHRMANUMED have more complicated structures with functional departments in several cities. Also, it was noted that in smaller manufacturing and hospitality organisations (e.g., 1KHIMANUSML and 4ISBTRVLSML) the majority of the company's decisions were in the hands of the owner-managers who managed the family business using traditional sales techniques. In such organisations, structures are found to be more informal and led by owner-managers.

In this study, the manufacturing sector was represented by three organisations: one small (1KHIMANUSML) and two medium-sized SMEs (3ISBMANUMED and 8LHRMANUMED). All three share the same commercial characteristics, operating via B2B, B2C and with other similar public and private organisations. In addition, 8LHRMANUMED deals with the government sector. As a smaller business, 1KHIMANUSMAL has internal financial issues which affect its ability to fully develop e-commerce within the organisation when compared to the two medium-sized SMEs (3ISBMANUMED and 8LHRMANUMED). Thus, the former relies on traditional physical sales methods. Further, while 3ISBMANUMED has adequate resources to adopt e-commerce processes and install the latest ICT units, the lack of ICT skills and experience within the business hinders such adoption. However, while 8LHRMANUMED has sufficient resources to adopt e-commerce-related applications, it lacks the technological knowledge and interest of business partners and suppliers. Thus, top management remains dependent on traditional sales methods and manages its business activities through traditional channels.

In the tourism and hotel sector, three smaller (2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML) and one medium (6KHITRVLMED) businesses were selected for this study. Extant literature (e.g., Barney, 1991; Grant, 1991; Peteraf, 1993) suggests that most small organisations use limited internal computer resources to take advantage of technological and environmental opportunities and move forward in the process of adopting an e-commerce project. However, due to the smaller size and structure of organisations such as 2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML, their development of e-commerce is limited due to various technological, organisational, environmental and individual factors. This study's findings have shown that the medium organisations, 3ISBMANUMED, 5ISBICTMED, 6KHITRVLMED and 8LHRMANUMED, have adopted e-commerce to a certain extent through the use of specific online payment methods, including credit/debit cards and digital bank transfers. However, due to the small size and flat structure of the smaller SMEs: 1KHIMANUSML, 2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML, they have not been able to take advantage of the opportunities available for the adoption of e-commerce.

8.2 Usage of ICT Infrastructure Units

The availability and overall quality of the latest ICT infrastructure (hardware and software) units discussed so far have been instrumental in determining whether or not a business adopts an e-commerce strategy. Examples include the latest computer peripherals, internet connectivity, and other network communication devices – including telephones or mobile devices, Wi-Fi devices and access points.

8.2.1 Availability and Quality of ICT Units

In order to analyse the overall e-commerce strategy of any organisation, it is necessary to examine the available quality of ICT infrastructure units; which may or may not configure e-commerce applications. Previous studies (e.g., Al-Qirim, 2007; Ghandour, 2015; Tan et al., 2007) have shown that the general condition of ICT units available in most developing economies is poor when compared to developed economies. In this study, the results show that necessary ICT hardware devices such as computers, internet connections, fax machines, printers and networking devices including telephones and mobile and email applications have been found in all the selected SMEs. However, the quality of such devices to support e-commerce in the smaller SMEs (1KHIMMANUSML, 2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML) is poor when compared to those medium-sized SMEs (3ISBMANUMED, 3ISBICTMED, 6KHITRVLMD and 8LHRMANUMED). In the smaller firms, only owner-managers have access to key ICT (software and hardware) devices because – in these SMES – the majority of tasks are controlled by the owner-managers.

The quality of existing ICT units, especially in the four small SMEs, was found to be poor with much of the technology being obsolete. This is because the majority of the owner-managers are not in favour of using ICT tools, and thus the current units require upgrading to support the successful development of e-commerce. However, where it is in place, high quality software with functional ERP and other reservation and e-commerce software has proven useful, and has been kept up to date because of owner-manager interest, ICT work experience and e-commerce knowledge. In support of this, previous studies have stated that a lack of ICT knowledge within top management is the main obstacle to e-business adoption by SMEs (Almoawi & Mahmood, 2011). Similarly, Cosgun and Dogerlioglu (2012) found that previous experience with ICT tools is considered as an essential element for the successful implementation of ICT equipment that supports e-commerce related projects. The findings of this research show similar results and highlight the negative role that can be played by owner-managers and other employees of smaller firms in their decision to adopt e-commerce.

8.2.2 Availability and Use of the Internet and Email

The quality of internet services in all smaller firms is not up to par, as compared to medium-sized organisations. Although internet technology is available in all the SMEs studied, the results showed that all the small SMEs had a slower PTCL internet connection. At the time of data collection, 1KHIMANUSML used an internet connection with a limited data package to communicate with customers while 2ISBTICKSML used obsolete computer devices that connected to the internet at a slower speed. Its use of such devices was to conduct essential commercial transactions, reservations via booking software and other daily necessary commercial activities. Similarly, 4ISBTRVLSML used the internet only for communications with corporate customers, and for sending and receiving emails containing details of organised tours and hotel bookings for business clients. In the same vein, the use of the internet in the small hotel business (7LHRHTLSML) was occasional; the receptionist and owner-manager used the internet only to send and receive quotes by fax and communicated via telephone or mobile devices. In relation to mobile devices, UNCTAD's 2015 report stated that for many people in developing economies, mobile networks are their only access channel to the internet. Thus, mobile phones are essential tools for entrepreneurship, empowerment and even financial inclusion. However, to date the majority of small SMEs have used traditional business methods to sell their products without using any computer software devices.

ICT devices in small businesses make it easier to manage the messaging services that connect each SME to the internet and email as a communication tool has been used by each company to carry out business activities. In this study, only one small SME (7LHRHTLSML) does not rely on Microsoft Office Outlook tools to communicate and record customer transaction information. This is due to the availability of tele-accounting software; used only to record the reservation information of customers and where payment methods are controlled by the receptionist and owner-manager. Compared to other SMEs under study, 8LHRMANUMED (a medium-sized SME) is highly dependent on email communications over the internet, with 75% of business transactions being received by this method. Most customers confirm their orders by email and then make payments through offline channels such as bank transfer or cheque payments. However, 8LHRMANUMED also receives orders through traditional fax, telephone and mobile channels, which is similar method to those of other SMEs under study. Nevertheless, the owner-manager felt that his employees – and some business partners – were still wary of internet technology and preferred to communicate over the phone. Further, within some of the businesses many of their employees were not online because executives thought they would abuse the system

by sending personal emails, surfing the internet to watch movies and listening to songs on YouTube or chatting on Facebook instead of working.

Official data are available for the European Union and OECD countries as well as for a small number of developing countries. Such data reports that very few low-income countries measure company use of the latest ICT devices for conducting their commercial activities online (UNCTAD, 2017). As a result, data for these countries is sparse. The findings of this study have thus that the development of e-commerce in the SMEs of Pakistan (as a developing economy) is lagging behind. This is particularly the case with small organisations as not all of them are fully equipped with the latest ICT infrastructure units to develop their e-commerce activities. In addition, they do not use up-dated hardware and software connected to a broadband internet connection. This can be compared to medium-sized organisations who are more likely to have the latest ICT infrastructure and who have also been able to develop and adopt internet email systems within their businesses.

8.2.3 Using Website Applications and Web 2.0 Tool Adaptability

This study found that only the four medium-sized SMEs have active websites. The reasons for this were found to be owner-manager interest, and sufficient budget to both manage and maintain web pages daily and maintain the latest ICT units to receive online orders. In relation to the small SMEs, it was found that the main factor for them was that they couldn't afford to develop or maintain websites. As noted earlier, while the medium-sized SMEs do have web pages, e-commerce transactions cannot be completed due to certain technological and environmental factors in the country. One of the most critical challenges for SMEs in the country is the lack of online payment methods and mechanisms; a challenge which – to date – has prevented all the SMEs under study from running their operations via the e-commerce channel.

Compared to other medium-sized SMEs, 3ISBMANUMED has the latest Magento 2 e-commerce software interlinked with its website which is mainly used by online customers to place an order and pay online. However, the online webpage primarily provides product information about the organisation and Italian-EU customers only have limited transaction access on the webpage to pay through credit/debit card. Further, due to the continued prominence of traditional sales methods in Pakistan, the organisation only receives 43% of its order through the website, and most of these are from outside the country. The results further show that the overall firm sale have increased via the use of an e-commerce channel, but not to the extent that had been anticipated. As a result, the webpage is mainly used for gathering information (with limited e-commerce activities) and customers then contact the business using traditional methods such as telephone or email to confirm their order.

Another of the medium-sized SMEs, 5ISBICTMED which sells ICT equipment, is well-structured and has an active e-commerce website. It is the only organisation to acquire ERP tools with search engine optimisation for positive results. All departments in the company are involved in the e-commerce process via ERP software, which gives the organisation an edge over the other organisations in the study. Although the organisation has an active website, most commercial transactions are still via cash payment upon delivery through the participation of a third-party mail company. This represents a more significant challenge for a company that relies entirely on web-based (e-commerce) transactions. As discussed earlier, the other two medium-sized SMEs, 6KHITRVLMED and 8LHRMANUMED, have enough resources to maintain and run their websites. The web pages of these organisations provide adequate information about their products and services, similar to the other medium-sized organisations (3ISBMANUMED and 5ISBICTMED).

The use of Web 2.0 adaptability tools (social media pages) is common to all eight SMEs in this study. All of the SMEs use Facebook, YouTube, and Twitter channels to market their products, for example by uploading different product images, travel information, and hotel packages to other businesses and to local customers. Ooi, Chong, and Tan (2011), and Dahnail, Marzuki, Langgat, and Fabeil (2014) found that the use of these new Web 2.0 tools in SMEs can improve their e-commerce performance. Therefore, the SME Facebook pages of four of the case studies (1KHIMANUSML, 2ISBTICKSML, 7LHRHTLSML and 4ISBTRVLSML) were used in this study for the analysis of online growth and the development of e-commerce activities. The results show that all four pages contain only the product images and contact information, with no detailed descriptions of products and prices being found. If the customer wants to know more about the product information, or obtain more information, they must contact the company by sending a Facebook message or using the phone numbers provided. In the case of 2ISBTICKSML, they may launch a website in the future, but for now the owner-manager relies solely on web 2.0 marketing tools, including Facebook, Skype and WhatsApp to communicate with customers and promote their business.

However, social media has become much more than mere channels of communication. At the European Union level, the share of businesses using more than two different forms of social media increased from 14% to 20%, just between 2014 and 2016. According to the OECD (2017a), they are used as ICT tools by about 45% of companies and their use is continuing to spread very quickly. The company 4ISBTRVLSML operates a web 2.0 Facebook page by the help of friends outside the organisation, but the response rate is not very good. In relation to 7LHRHTLSML, they do not heavily rely on Web 2.0 tools when compared to the other SMEs because of their structure and size; thus, management relies

on face-to-face communication with customers when they visit the organisation. The cases presented in this study suggest that Web 2.0 social media tools are part of the business of SMEs, but they do not rely on them to perform all their selling activities because these media pages are used for marketing purposes and no business has taken direct advantage of these pages to receive e-commerce transactions.

Other medium-sized SMEs such as 3ISBMANUMED, 5ISBICTMED and 6KHITRVLMED are more active on social networks and effectively apply Web 2.0 tools in their organisations. Their social media pages are controlled by IT and marketing departments. The 5ISBICTMED website is linked to Web 2.0 tools such as Facebook and Twitter, but only provides information about corporate vacation packages and airline promotions. 8LHRMANUMED also relies moderately on the website for product promotion and is also active on social media using Web 2.0 tools to promote products and services and provide information about the company. This company has a website that was developed by a third-party company and uses email marketing to promote themselves to both existing and new customers. Further, the interactivity of Facebook, YouTube, Twitter and LinkedIn is visible on the web page and is fully active. However, no e-commerce related buying and selling activities can be found on the website because of the widespread usage of traditional offline cash payments and channels such as selling through tenders, and owner-managers relationships with the customers. A similar study conducted by Martinsons (2008) in the Chinese environment also found that they were more reliant on traditional methods, including building a lasting relationship with customers. In relation to customer loyalty, previous studies on the role of interactivity in e-commerce have shown a definitive relationship between the level of Web 2.0 interactivity and customer loyalty (Watson, Akselsen, & Pitt, 1998), and the online performance of the company (Auger, 2005).

8.3 The Role of Owner-managers

The role of owners-managers in the development of e-commerce is essential in SMEs in both developing and developed economies (Ghobakhloo & Tang, 2013). Using the extended individual category from the framework of the TOE model (as shown in Figure 22-chapter 5), the findings of this study provide information on the progress of SME e-commerce as a business necessity requiring special attention from those in power.

8.3.1 Owner-managers' Attitude Towards E-commerce

Previous studies have highlighted the positive role of owner-managers in the planning, organisation, management and control of all e-commerce projects and activities, and have

defined explicit objectives for many projects in SMEs (Al-Qirim, 2007; Caldeira & Ward, 2003; Ghandour, 2015; Oliveira et al., 2015). After extending the TOE framework to include an additional individual category, this study revealed that most owner-managers of SMEs in Pakistan are aware of the e-commerce adoption policy and technological objectives, as well as the objectives of their activities in the creation of new business models. In fact, the owners-managers of the four small SMEs believe in an authoritarian style of business, control all departments and participate fully in decision-making processes. However, they are often unaware of the actual benefit gained from the implementation of the latest ICT infrastructure devices (software and hardware) that their businesses could use to support an e-commerce project. On the other hand, the owners-managers of the four medium-sized SMEs emphasise the positive role, and support and trust that e-commerce can be described as a business need. Thus, the results differ from those of the small SMEs with respect to the attitude of management.

8.3.2 Enthusiasm of Owner-managers for the Adoption of E-commerce

Previous studies have shown that SMEs in various sectors are more likely to meet their objectives owner-managers (and other staff) have developed their technical skills. To achieve this goal, Grandon and Pearson (2004) found that SMEs are more likely to adopt e-commerce if they have a positive attitude toward the implementation of the internet and web applications. The results of this study support their finding, and have shown that the better results can be achieved if owner-managers and other employees are enthusiastic about the adoption of e-commerce through developing their ICT skills and knowledge of the applications of e-commerce. This is particularly relevant for the owner-managers of the SMEs in this study since their products and services can be easily marketed online through the internet, which is a beneficial online communication channel. With internet availability in each SME, it offers owner-managers opportunities to grow their business online. However, even with enthusiasm, success can only be achieved if the owner-manager (and other staff) has experience and extensive knowledge of technology applications – including the internet – and understands what they are capable of.

To move forward, owner-managers must be enthusiastic, passionate, and firmly believe in the benefits of ICT tools as well as commit to seeing e-commerce as an essential and integral part of the business (Mohapatra, 2013). This study revealed that decision-making remain under the control of SME owner-managers (particularly common in smaller SMEs), but owners of medium-sized companies are more motivated and enthusiastic to develop e-commerce in their business. Owners-managers/CEOs of the four small SMES under study do not have enough computer training to manage an e-commerce project across

departments. In addition, they have not clearly understood the value of e-commerce for their business. Finally, due to the limited budget allocated to the development of e-commerce – along with other cost issues – owner-managers of the small SMEs are not as motivated as those in the medium-sized SMEs to go beyond their traditional boundaries and adopt e-commerce applications across their organisations.

As noted above, owner-managers of the medium-sized SMEs have been very understanding and have adopted a positive attitude towards the adoption of e-commerce. However, due to the lower enthusiasm of senior executives (who are mainly older employees), they continue to fight for the full integration of e-commerce. The primary education and poor e-commerce knowledge of most senior executives and other employees in all the selected SMEs is also a barrier for the adoption of e-commerce in their organisations. The results revealed that senior executives have minimal computer skills and rely on the manual management of their businesses, without the intervention of ICT. It is interesting – and somewhat alarming given the age of some of the studies – that the results of this study are similar to those of previous studies (Kenneth et al., 2012; Oliveira et al., 2015; Shemi & Procter, 2013; Thong, 1999). Those studies found that SMEs with owner-managers and other employees who are more computer literate – and have experience in the use of ICT devices – are more likely to adopt e-commerce. In addition to ICT skills, Mirchandani and Motwani (2001) also found that the enthusiasm of SME owner-managers or senior executives for e-commerce was a distinguishing factor between adopters and non-adopters.

8.4 Factors Affecting E-commerce Adoption

Examining the factors affecting the adoption of e-commerce in the SMEs under study shows that the various factors identified affect SMEs differently according to the socio-technical and contextual context. The following subsection analyses the TOE framework and the cross-case factors based on the TOE themes of the eight selected SMEs studied in the context of Pakistan.

8.4.1 Technological Contextual Factors

8.4.1.1 Availability and Quality of the Latest ICT Infrastructure Units (Internal)

Previous literature has emphasised that for the successful adoption of e-commerce technologies, it is crucial for organisations to adopt the latest ICT devices that support e-commerce projects. The availability and quality of current ICT infrastructure represent the technologies (hardware and software) that enable SMEs to develop their e-commerce

processes (Chatzoglou & Chatzoudes, 2016). In considering quality, this study found that due to the smaller size and horizontal structure of the four small SMEs, ICT units are not fully developed and require more progress. This is because they use outdated ICT equipment that need to be updated for e-commerce to succeed. All small SME participants indicated that they did not have the latest ICT devices available in the business to support an e-commerce project. Although hardware devices were available in each firm to handle day-to-day activities, they were controlled by owner-managers, were outdated and had no ICT support within the business.

In contrast, the quality of the ICT infrastructure in the medium-sized SMEs is relatively good, and most firms have well-structured ICT units. These include high-speed internet connections, scanners, laser printers, fifth generation computers and laptops, and efficient e-commerce and booking software such as ERP and Magento 2. In addition – and an important distinction – there is a business-friendly environment with the necessary facilities and inter-office coordination. However, despite this, there are other TOE factors involved which mean that participants from the medium-sized SMEs indicated that they are not yet fully integrated with e-commerce in their departments.

The findings of this study prove that it is imperative that every business has the latest ICT infrastructure available in order to embrace e-commerce fully in all departments. The cases highlight that to date, Pakistan's SMEs, as well as their counterparts in most developing economies, do not have sufficient infrastructure, especially when compared to developed economies. This finding is consistent with the earlier findings of Awa et al. (2016), Chatzoglou and Chatzoudes (2016), Iacovou et al. (1995) and Shemi and Procter, (2013) repeatedly emphasised this factor, and concluded that SMEs with more new ICT infrastructure units are more likely to adopt e-commerce.

8.4.1.2 National E-readiness (External)

In preparing SMEs for the adoption of e-commerce, the country's overall ICT infrastructure need to be optimal. The results of this study have shown that in Pakistan, ICT systems are not fully developed, and broadband internet and other related tools networks are not available in most places; especially in rural areas. The costs of the latest computers and other ICT accessories are also huge and it is difficult to justify the investment (Syed & Shaikh, 2012). In relation to costs, it is evident in the literature that the high cost of latest ICT infrastructure devices in many developing countries restricts the ability of SMEs to adopt new technologies and thus influences the growth (or lack of) of e-commerce (Ghobakhloo & Tang, 2013). Of note is that all eight SMEs participating in this study indicated that overall national readiness was a determining factor in their e-commerce

adoption process. According to UNESCO (2005), the country's electronic preparedness is essentially a measure of its online business environment; a combination of factors that indicate how open a market is to the opportunities offered by the internet (UNCTAD, 2003).

All participants further stated that private ISPs, public institutions and banks – which hold the monopoly of providing facilities and services to national consumers and the commercial sector – do not have adequate infrastructure and facilities. The general weakness of the national infrastructure means that SMEs generally only allow a limited transaction with a particular credit card, which makes it even more challenging to use credit cards for daily purchases. The cases highlight that this is due to the current weaknesses of the national banking network and its structure. As a result, the country's infrastructure is not powerful enough to help local businesses adopt cutting-edge technologies, including e-commerce and its applications via the internet. Thus, this is also a significant obstacle to adoption by all SMEs in e-commerce. Therefore, these general infrastructure deficiencies in the country require support, and improvement from the government. These results corroborate the studies of Chen et al. (2013), who studied e-readiness for e-commerce adoption by SMEs in Southeast Asia. They noted that the electronic readiness envisioned by Southeast Asian SMEs should prioritise the positioning of the digital economy and the necessary infrastructure to enhance the ability of participating SMEs to adopt e-commerce.

8.4.1.3 The Slow Speed of the Internet

Pakistan, as a developing economy, is confronted with the slow pace of the internet as a barrier to SMEs for the development of e-commerce services. In this study, participants felt that the slowness of the internet is delaying their progression of e-commerce. This slowness was a particular issue for small SMEs, but was also an issue for medium-sized SMEs and seen as a barrier to e-commerce adoption. Due to the slow speed of the internet, the majority of SMEs use internet applications solely for communication purposes by sending and receiving e-mails and by promoting products and services on social media pages, which can be done to the availability of slow internet speed. However, for e-commerce applications, a high speed internet connection is required. These findings support those of Kotelnikov (2007), who reported that with the limited speed of internet services and network devices, most SMEs in developing economies preferred to utilise only the email aspect of e-commerce.

This slow speed is affecting the adoption of e-commerce in SMEs such as 4ISBTRVLSML, who are based in small towns and rural areas in the north of the country where internet speeds are inherently inferior. 4ISBTRVLSML has a PTCL (ISP) internet connection, but one participant said that because of line and weather distortion, the speed of the internet is

unreliable, affecting various ICT systems and internal communication process with field staff based in northern regions. In 1KHIMANUSML, all departments are centralised and the slow speed of the internet connection – combined with a limited data package – means that sometimes the communication process between internal employees and with external clients is interrupted. In contrast, medium-sized firms such as 8LHRMANUMED and 3ISBMANUMED use a good internet connection and efficiently manage the reservation software's. However, continuous and uninterrupted internet connectivity is still needed for these SMEs to manage fast and secure e-commerce transactions. Also, due to service interruptions in Pakistan's internet services, some SMEs, including 3ISBMANUMED, are faced with the limitation of slow download speeds, which is more common among individual internet users than at companies. 5ISBICTMED also faces some disruption of internet services when booking customer tickets on the booking software, something which could potentially lead to the loss of future customers.

Thus, the findings of this study are similar to those of Kabango and Asa (2015), Kapurubandara and Lawson (2008), Lawrence and Tar (2010), Molla and Licker (2005), and Shemi and Procter (2013). They all found that the speed of the internet to manage an online business in developing economies is very slow compared to developed economies.

8.4.1.4 Power Outages

Power outages (shortage of electricity) seems to be a common factor for all participating SMEs. The energy crisis is the most severe problem facing the world today, especially in developing economies. The eight SMEs in this study identified electricity shortage as a determining factor in the adoption process of e-commerce. Most interviewees said Pakistan has faced an unprecedented energy crisis for many years. This problem worsens in summer and causes daily electricity shortages of eight to 10 hours in urban areas and 16 to 18 hours in rural areas. This shortage seriously affects industries, commerce and people's daily lives as well as the daily activities of SMEs (Kessides, 2013). Without a continuous supply of electricity, SMEs will not be able to use ICT equipment that supports e-commerce and other related technological tools in the country (SMEDA, 2017).

In the event of power failure, the medium-sized SMEs (8LHRMANUMED, 6KHITRVLMED, 5ISBICTMED and 3ISBMANUISB) use generators and backup devices to operate computer systems. However, participants stated that when the outage occurs, it is not affordable for them to use diesel generators for a long time, which hinders the continued operation of technological devices and their processes.

Previous findings from the literature on developing economies (e.g., Hyder & Lussier, 2016; Seyal et al., 2004; Wahga, Blundel, & Schaefer, 2015) have confirmed that in developing economies including Pakistan, power outages prevent many SMEs –, especially those in remote regions – from adopting e-commerce. Abdullahi et al. (2015) also found that the issue of electricity is a difficult obstacle to address among the infrastructure problems of Nigerian SMEs as a developing economy. The problem of the power supply has reduced the business environment, and companies are now relocating to neighbouring countries like Ghana where infrastructure is more available.

8.4.1.5 Online Payment Security and Data Privacy

The security concerns of online payments and the confidentiality of consumer data in the country were cited by as another factor preventing all SMEs in the study from fully adopting e-commerce services. Pakistan, as a developing economy, faces severe problems in terms of online payment security and consumer data protection for online shopping experiences; something which is mentioned in the SBP Report of Pakistan under its Review of Payment Systems for the 2017–2018 Fiscal Year (SBP, 2018).

Online and mobile payments are those payments made through mobile devices or computers connected to the internet through existing online personal accounts; usually a bank account, a credit/debit card or a payment service provider to perform transactions on the internet. With technological advances, the use of mobile devices by consumers in developing economies in online payment transactions has increased (UNCTAD, 2017). However, the cases presented in this study highlight some of the problems associated with online and mobile payment systems presented to online consumers. Most of the SMEs participating in this study revealed that their consumers are at risk of a security issue when buying online and making online payments. They reported that consumers considered that their personal data could be accessed by unauthorised third parties, including marketing and promotion companies, without their knowledge or consent. In addition, they felt that they may be at higher risk when they shop online if they find that there is no secure payment mechanism available on the company's website. Studies by Chong and Chan (2012) and Kima et al. (2010) suggest that excellent web security systems and user privacy help improve online user confidence and increases the rate of adoption of e-commerce in organisations in developing economies, but also in developed economies.

Participants in 2ISBTICKSML and 5KHIMANUMED said that due to insufficient security of online payments and data privacy, the rate of receiving payments via the e-commerce channel is very low. Customers of other SMEs (1KHIMANUSML, 3ISBMANUMED, 4ISBTRVLSML and 5ISBICTMED) were also reluctant to use e-commerce services online

as they felt it constituted a breach of confidentiality for the consumer. These study findings show that internet security is becoming a major problem in Pakistan. As a result, most of the respondents who participated in this study stated that their customers viewed the internet as an insecure way for transactions and prefer to do offline transactions to avoid the risk of internet fraud. This finding supports the conclusions of Awa and Ojiabo (2016), Humphrey et al. (2003), Oreku et al. (2009) and Sun et al. (2018) who reported lack of e-commerce trust as regards the security of payments and the confidentiality of consumer data, hinders the development of e-commerce, particularly in SMEs in developing countries. The cases in this study suggest that consumers fear they risk their identities being stolen and that this threatens trust in e-commerce, and undermines its growth (OECD, 2016).

8.4.2 Organisational Contextual Factors

8.4.2.1 Size and Structure of the Organisation

Most SME managers and other participants in this study noted that the size and structure of the organisation were considered an essential factor and demonstrated the company's ability to provide the necessary resources – human and financial – to adopt the new technology standards. The data in this study show that medium-sized SMEs have greater ability to provide specific resources to their business than the smaller SMEs. As a result, medium-sized SMEs are more likely to adopt e-commerce. The small SMEs in this study had flatter structures where decision-making power was in the hands of the owner-managers. As noted previously, this has an impact on the implementation of ICT technologies that support e-commerce projects. Small SMEs do not have adequate management structures, resources or ICT departments to further facilitate e-commerce projects; all of which have a positive influence on the adoption of e-commerce. The results of this study corroborate previous results (Dholakia & Kshetri, 2004; Iacovou et al., 1995; Jeyaraj et al., 2006; Lertwongsatien & Wongpinunwatana, 2003; Martins et al., 2015; Scupola, 2009) that size and structure are decisive factors in a company's decision and involvement in the adoption of e-commerce.

8.4.2.2 Inadequate Financial and Skilled HR

The factors that most affect SMEs – as noted by participants – are the limitation of the financial budget and lack of qualified staff. Within the SMEs, the adoption and development of e-commerce has often failed due to issues related to the financial capacity of the owner-managers and the ICT skills of employees (Modzi, Ankrah, Twum, & Asamoah, 2016). The four small SMEs expressed limitations in relation to their financial capacity to set up new

ICT infrastructure bases or upgrade an existing ICT infrastructure unit. This also extended to the ability (or lack of) to develop and manage the e-commerce website as compared to the medium-sized SMEs.

In the case of 1KHIMANUSML, the owner-manager explained that due to their limited ICT budget, they did not want to update the network communication channel by installing the latest network devices. Concerning website development, another participant from the same SME stated that his organisation does not have an experienced web developer able to develop and manage the website daily and that due to cost issues, the company is not able to use web services from external ICT providers. Two of the smaller firms, 2ISBTICKSML and 4ISBTRVLSML, have been severely affected by the maintenance costs of ICT devices. In addition, without the existence of an ICT department, the website has become inactive or absent for a long time. Further, the owner of 4ISBTRVLSML has faced the problem of buying local low-cost latest ICT hardware and software to support an e-commerce project due to internal cost issues. Therefore, for smaller SMEs in particular, it is complicated to develop a commercial website for e-commerce transactions and to recruit qualified ICT staff for webpage development, maintenance of ICT units and execution of e-commerce activities on a daily basis. In addition to the limited ICT staff in Pakistan, those that are employed usually work for large organisations, and SMEs cannot afford to hire their expensive services and pay a high salary (Syed & Shaikh, 2012).

In contrast, the medium-sized SMEs did not raise cost as an issue in relation to the maintenance of existing ICT devices and e-commerce applications, including reservations and online software's, due to the diverse nature of their services. For example, 3ISBMANUMED and 6KHITRVLMD have sufficient budgets to maintain and operate the latest ICT units. However, when ICT systems need to be modernised, and e-commerce services have to be managed smoothly, there are still some budget constraints and so they also remain loyal to traditional sales methods. The results are similar to those of previous studies (Chatzoglou & Chatzoudes, 2016; Ghobakhloo & Tang, 2013; Scupola, 2009; Zhu & Kraemer, 2005) which examined the essential factors for the adoption and implementation of e-commerce in both developing and developed economies – including Denmark and Australia. The results show that a company's human and financial resource constraints have a significant impact on the adoption of e-commerce by individual SMEs.

8.4.2.3 The Absence of a Website and Ordering Payment Facility

To facilitate e-commerce projects and online transactions (and thus receive orders online), companies need an active website with an online payment system that allows e-commerce payment by different methods. Where these are in place, it is easy for potential customers

to access the company's online products and services. However, the cases presented in this study highlight the lack of a website offering an adequate payment mechanism as being a factor that prevents many SMEs from offering e-commerce services and receiving transactions through the e-commerce channel.

SMEs 1KHIMANUSML, 2ISBTICKSML, 4ISBTRVLSML and 7LHRHTLSML do not have an active website with payment facilities. Participants from these SMEs feel that the website is an additional expense for the organisation and that traditional selling methods including cash payments are widely available in the country. In contrast, medium-sized SMEs such as 3ISBMANUMED, 5ISBICTMED, 6KHITRVLMED and 8LHRMANUMED have an active website, but the web payment service is only found on the web pages of 3ISBMANUMED and 5ISBICTMED. In the other two (6KHITRVLMED and 8LHRMANUMED), the website is used solely to market the products and services of the companies. Participants from 1KHIMANUSML and 2ISBTICKSML indicated that they were not in a hurry to set up a website because Pakistani consumers do not trust the website sale and that the online payment mechanism in the country is not widespread; as was discussed earlier. Despite having the service in place, this barrier is also one faced by 3ISBMANUMED and 5ISBICTMED, and participants from these SMEs reported that even though they have a web-based payment service available, customers are reluctant to use the services and to pay online due to other technological and environmental barriers. As a result, this study findings revealed that in most SMEs, a website is only a marketing tool and that the complete e-commerce transaction system was, to a greater extent, not available.

These findings are similar to the earlier findings of Rahayu and Day (2017) who examined the adoption of e-commerce by Thailand SMEs (a developing economy). They found that many SMEs only adopt simple websites, such as static sites or interactive websites, for the marketing of products and services, and some of them have email only for communication. They suggested that a lack of financial resources was probably the main reason for not having an adequate website with payment functions that support e-commerce services.

8.4.3 Environmental Contextual Factors

8.4.3.1 Traditional Selling Methods

Another critical factor for SMEs in the development of e-commerce is the traditional method of selling: combining relationship-based selling, personal contacts between owners and clients, and word of mouth used as a marketing tool. Among the sample studied, this factor is common to all SMEs, and most participants cited the traditional methods of selling as a barrier that affects companies when adopting e-commerce technology.

SMEs 1KHIMANUSML, 2ISBICTSMML and 7LHRHTLSML rely primarily on sales-based relationships and personal owner-managers contacts to conduct business transactions. This is the preferred sales method in the business environment of Pakistan and is adopted by many organisations in the country. In 2ISBTICKSMML, the use of personal sales techniques to physically visit and communicate with customers in the field is widespread to sell its products and services. Most transactions are therefore achieved as a result of personal contacts. Participants from the medium-sized SMEs 3ISBMANUMED, 6KHITRVLMED and 8LHRMANUMED confirmed that sales were relationship-based and that owners' methods of managing personal contacts impede the adoption of e-commerce at different stages. Although some SMEs do have e-commerce Magento software and ERP tools; because of the country's traditional culture, the company's management is also required to use traditional sales methods and these include the use of telephone or mobile devices, fax and email for communication.

These results corroborate the study conducted by Khaskheli and Jun (2016) on the general behaviour of Pakistani SMEs in relation to a traditional way of doing business; combining word-of-mouth with fax and telephone and, more recently, the use of mobile communication. They also examined the critical challenge for SMEs to fully develop e-commerce technologies and rely on online communication tools to sell various products and services.

8.4.3.2 Lack of Consumer E-commerce Trust

The common characteristic of all SMEs is the lack of consumer confidence to complete online purchases in Pakistan. Buying in Pakistan is an outdoor pleasure, and urban Pakistanis prefer outdoor shopping where they combine shopping with family meals at restaurants. The cases presented in this study show that, unlike Western consumer culture that has little time to go to commercial markets to visit physical stores and buy, Pakistani consumers enjoy this type of shopping by making it a family event. As a result, consumers prefer to visit the store instead of relying on online purchases (Nasimi, Nasimi & Basit, 2018). However, in this study, participants suggested a few reasons for not buying online and using e-commerce services; one of the most being the lack of consumer confidence in e-commerce and its services.

All participants indicated that there is a culture of fraud and misrepresentation in the Pakistani markets, in which sellers hide the weaknesses of their products. A visit to markets and stores is thus becoming a perceived necessity for consumers to verify the quality and quantity of the desired products; something which is not possible online. One participant (3ISBMANUMED) explained one case where a customer purchased products online but did not receive the same items they paid for and thus felt cheated. In 5ISBICTMED, executives

reported cases of online purchases where colour, product description, tastes, product size and shape, and product design were different from the product published on corporate web pages.

The results of the eight SMEs in this study show that the general perceived culture of fraudulent business practices of Pakistani companies has also affected the level of consumer confidence in e-commerce. This factor is considered a significant obstacle to receiving e-commerce transactions because customers do not trust online purchases and prefer to pay through offline channels. The results of this study are similar to those of Aziz (2017) and Hanif (2018) in Pakistan and have revealed that the perception of consumer confidence in online purchases has become a critical factor in the evolution of e-commerce applications in developing economies.

8.4.3.3 Consumer Preference for Cash Payments on Delivery

The eight SMEs in this study identified traditional offline payment methods, such as cash on delivery, as a determining factor in the e-commerce adoption process. They reported that the majority of transactions were offline, involving a physical exchange of cash. In those SMEs (e.g., 3ISBMANUMED) who do have an online element, this involves only the ordering element of the transaction and payment is subsequently made in cash form upon delivery of the goods. For e-commerce services, appropriate credit/debit cards or digital payment methods are required to conduct transactions. However, most study participants noted that due to the low use rate of such payment methods, consumers perpetuate a preference for cash on delivery when products are received. One respondent from 3ISBMANUMED reported that in addition to arranging for cash on delivery for the majority of Pakistani customers, only 23% of its Italian-European customers could pay online. The results of this study also revealed that the country does not have active PayPal services to receive and send money (Aziz, 2017).

Thus, as noted above, this lack of confidence in electronic payments may partly explain the low participation of consumers and SMEs in e-commerce. Lack of confidence in the use of credit/debit cards or other online payment methods is probably one of the critical issues to overcome for the successful and widespread adoption of e-commerce by the Pakistani public. Physical cash payments therefore continue to dominate the business market in Pakistan, and this impedes the adoption of e-commerce and a move towards reliance on electronic transactions. The results in this study corroborate earlier findings of Khaskheli and Jun (2016).

8.4.3.4 Technological Awareness and Education in Society

Previous studies suggested that a lack of awareness of the potential uses and benefits of ICT could also hinder the growth of e-commerce (Kapurubandara & Lawson, 2008; Molla & Licker, 2005). In some developing economies, the population only know of limited internet applications such as chat, email, and internet browsing; including Facebook (West, 2015). As a result, organisations have not considered taking advantage of the potential of e-commerce to improve their business operations. This limited knowledge of e-commerce and computer training among SME clients was cited by all participants – including the owner-managers – as a barrier to the adoption of e-commerce. Of interest is that Participants from all the selected SMEs had similar opinions and thought that most of the clients were uneducated and did not know about the technology used to place orders online or how to use digital payment methods; nor could they understand the web content and the English language. Thus, this is a significant obstacle to the use of e-commerce services.

The results revealed that in Pakistan (a developing economy) most of its citizens are not very well trained in the use of ICT services and various online tools. This limited technical knowledge is mainly due to Pakistan's low technological literacy rate. The literacy rate in Pakistan has decreased by 2% from 60% in 2015 to 58% in 2016 (Haq, 2017). In this study, participants felt that the government have tried to improve this but that it takes time to see the effects. Teaching programmes have been integrated into different colleges and universities, and training centres have also been established; albeit all in the big cities of Pakistan. However, it will take time for the workforce to be ready to take up the challenge of e-commerce. The previous findings of Altayyar and Beaumont-Kerridge (2016), and Alrawi and Sabry (2009) confirm that technology training programmes not only improve people's awareness, but also motivate them and increase their self-confidence to engage in online services. They also confirmed that computer training and e-commerce awareness are essential to building a positive and more adaptive culture of e-commerce in society.

8.4.3.5 Absence of Legal Regulation on Online Payments

The eight SMEs in this study indicated that the lack of regulation or online payment policy to guide e-commerce transactions was a determining factor in the process of e-commerce adoption. The formulation of e-commerce regulation in Pakistan has been slow and many public and private sector companies, as well as individual home users, do not have an adequate e-commerce framework to guide their e-commerce transactions. At present, there is no legislation, regulation or payment mechanism for e-commerce in the country that requires SMEs to participate in a secure way.

In this study, participants revealed that the lack of a legal and payment framework for e-commerce has hampered the development e-commerce within SMEs. Therefore, as previously established, cash payments remain prevalent in the country for commercial transactions. Similarly, previous findings in Pakistan (Hanif, 2018; Shaffi, 2017) and other Asian developing economies (ADB, 2018) also concluded that there are inadequate regulations for online payment in developing South Asian economies, and despite the growth of e-commerce worldwide, the proportion of post-paid cash payment transactions is still around 80-95%.

8.4.3.6 Unstable Political and Governmental Situations

All participants stated that political and governmental situations are a critical factor in the successful development and implementation of technologies in any economy. In a country where the political situation is unstable, it is unlikely that public authorities will pay enough attention to technological developments such as the development of e-commerce or even the implementation of the latest ICT equipment for the local business market. Thus, the stability of the political and governmental situation is essential for all the activities of SMEs, including the adoption of e-commerce.

The majority of participants said that the unstable political and governmental situation in Pakistan is affecting the decisions of the organisation regarding the implementation of the latest ICT units which support e-commerce. Participants (particularly owner-managers) believe that whenever the government changes in Pakistan, SME policies and interest rates also change due to the lack of political stability in the country. Newly elected governments have also imposed new ICT taxes and regulations, which sometimes creates a problem for SMEs who want to change their minds about adopting e-commerce as technology. Political and government instability also affects the costs of technology products that are used in the e-commerce process. Most technology suppliers and dealers process quotations in USD and when a government modifies its tariffs, the costs of state-of-the-art equipment increases; requiring many SMEs in the country to use affordable ICT tools that support e-commerce.

The owner-managers of the SMEs further noted that the political situation in Pakistan remains unstable and this affects the business environment for future investment, research and development. As a result, with low-profit margins for SMEs, new entrepreneurs are reluctant to invest in modernising traditional business units in favour of e-commerce. To improve the country's overall e-commerce structure, the government needs to introduce a long-term technology policy for SMEs as well as reducing import taxes on the latest ICT equipment. However, this is only likely to be actioned by a stable and reliable government.

The role of a stable government and political environment in the development of e-commerce has been widely discussed in the literature. A study by Kapurubandara and Lawson (2008) found that, due to different economic, political and government conditions, there was less interest in research on the e-commerce sectors of SMEs. In addition, Kwadwo, Martinson, and Esther (2016) confirmed that government and political instability in some geographic areas of Ghana prevent SMEs from engaging in e-commerce due to trade restrictions and uncertainties. Further, Abualrob and Kang's (2016) study highlights the main obstacles to the adoption of e-commerce in Palestinian SMEs by using a TOE framework. In that study, the instability of the government had a positive and significant relationship with resistance to the adoption of e-commerce. The results also revealed that SMEs are thinking twice before investing or adopting new technologies in an unstable political climate.

8.4.3.7 Corruption and Favouritism of Local Business Institutes

Participants confirmed that another significant factor which affects SMEs is the corruption and favouritism of governmental and local business institutes. Participants highlighted corruption as one of the crucial factors limiting the successful implementation of ICT equipment which helps in the adoption and further development of new technologies, including e-commerce. In Pakistan, the issue is routine deviation from established standards and norms by public officials and parties with whom they interact. Corruption is accepted in various ways such as bribery and kickbacks in public procurement, the sale of public property by government officials and misuse of government funds (Reinikka & Svensson, 2005). This is particularly problematic for SMEs because they cannot compete with larger companies regarding technological resources and thus, are likely to be last in line when the "favours" are handed out.

During the interviews, participants in this study indicated that the government ministries and local financial institutes were held responsible for the spread of corruption in Pakistan, as these local bodies control and allocate the country's public resources. The GoP plays a crucial role in promoting new technologies in the country due to the favouritism of large organisations and corruption (bribery) in many ministries – particularly in the trade and commerce sector. As a result, participating SMEs are still lagging behind in the implementation of the latest ICT infrastructure supports the adoption of e-commerce. Shabbir (2017) confirmed this statement by saying that corruption in government services – especially in trade and commerce – affected the development of SMEs in many countries. The results of this study further show that obtaining infrastructure loans from commercial banks to upgrade ICT infrastructure is another hurdle for SMEs. The owner-managers

confirmed this by claiming that local and provincial governments are offering ICT infrastructure loans to SMEs, with the collaboration of financial institutions, including local, national and commercial banks, to improve basic ICT systems that support e-commerce. However, government officials and financial institutes prefer larger organisations because of the affordability of higher interest rates.

Participants also noted that the country's local business institutes do not play an active role in improving SMEs and developing e-commerce. In this study, participants have never contacted local business institutions or support agencies and are not affiliated with any industry, as they felt that local business institutes were primarily focused on larger organisations. They further stated that local business institutions are only looking out for their own benefit and have no interest in facilitating SMEs. However, some private organisations and associations are working in the country to improve SMEs, but their membership is not yet affordable for SMEs. Abrar-ul-Haq et al. (2015) confirmed these findings by stating that local business institutes can help Pakistani SMEs obtain credit for improving their e-commerce operations, but that inappropriate government policies on e-commerce and favouritism by local commercial institutes are the leading barriers to the full development and progress of e-commerce in SMEs.

8.4.3.8 Lack of GoP Support in the Adoption of E-commerce by SMEs

Previous findings showed that in economies where e-commerce technologies have been successfully adopted, the government had taken initial steps to promote and support e-commerce at various levels (Gibbs & Kraemer, 2004; Lawrence & Tar, 2010; Molla & Licker, 2005; Scupola, 2009). However, in this study, participants indicated that inadequate government technology support for e-commerce and unavailability of legal and regulatory e-commerce framework by GoP affected their SMEs in the development of e-commerce applications within the commercial context of Pakistan.

Although the GoP plays a vital role in the development of e-commerce technology policies for the well-being of businesses in the country, this offer of support is still far from being accepted by many SMEs. In this study, government support proved to be the most critical factor in the adoption of e-commerce with participants discussed various issues including the improvement of infrastructure, laws and regulations, financial support, the tax system, the education programme and the promotion of ICT use. Scupola (2009) found that government intervention has always had a decisive influence on creating economic growth and promoting the diffusion of technological innovations. However, the results of this study revealed that the GoP had shown little interest in supporting SMEs as discussed in previous sections; focusing only on strengthening the infrastructure of larger organisations and even

imposing more taxes on SMEs. The SME sector is, therefore, not a priority for GoP or financial institutions and other ministries.

Ticketing and hospitality industry participants felt that local and provisional governments generally did not support the country's SMEs, which resulted in the emergence of some hotel chains that were monopolising the sector. In addition, the services provided by small and medium-sized hotels are heavily taxed, which has a deterrent effect on small hotels and could eventually shut them down. As noted in the previous sections, trust is one of the significant problems for Pakistani consumers with low penetration of e-commerce services in Pakistan's SMEs. Therefore, GoP actions to make e-commerce an economic tool for improving the economy and the local business market, along with the establishment of an adequate legal and regulatory framework are essential to strengthen online activities in the country. However, the owner-managers in this study suggested that the formulation of legal and regulatory frameworks for e-commerce in Pakistan has been slow and that SMEs and individual users did not have adequate policies to guide e-commerce transactions. Further, there is no developed legal regulation and e-commerce system facilitating e-commerce transactions in the SMEs of Pakistan. This is despite the government's attempt to pass a law on e-commerce to encourage safe and secure e-commerce commercial payments which unfortunately was unsuccessful. This could have an impact on the use of e-commerce applications by Pakistani SMEs, as currently there is no legal framework that SMEs can use as a point of reference in their day-to-day business operations and to promote e-commerce in the country.

Previous studies have shown similar results on government support, which is a critical environmental factor that may have a positive or negative impact on the adoption of e-commerce by SMEs (Altayyar & Beaumont-Kerridge, 2016). Al-Alawi and Al-Ali (2015) also found that the government could influence the adoption of e-commerce by local SMEs through creating a legal environment for doing business via the internet. Jeon et al.'s (2006) study examined the determinants of the successful adoption of e-commerce by SMEs in Korea and confirmed that the role of government is essential to promote e-commerce among SMEs in Korea. Thus, government should take the lead in providing infrastructure and subsidies, removing barriers to e-business adoption by SMEs, and facilitating access to information and the global SME market. Also, SMEs must be confident that the regulatory system will take into account the interests of security, privacy and consumer protection (OECD, 1999). However, the results of this study show that in developing economies such as Pakistan, the role of GOP in the implementation of ICT and e-business policies is still questionable – which has an impact on the successful adoption of e-commerce by SMEs.

8.4.4 Extended Individual Contextual Factors

8.4.4.1 Individual Adoption Characteristics of Owner-managers

Participants considered the extended individual characteristics of the owner-managers as another essential factor related to the adoption of e-commerce. The cases in this study revealed that the dimensions of the extended model of the TOE framework provided useful individual information on the intention of owner-managers to adopt (or not) and develop e-commerce activities. In the analysis of all the SMEs in this study, it was found that the presence of e-commerce has a mutual relationship with the presence of enthusiastic owner-managers and other senior staff. The extended individual factor has therefore highlighted the importance of the owner-managers role in the development of e-commerce. In addition, the individual characteristics of other senior executives in the eight cases have also been shown to be crucial in the e-commerce adoption scenario.

The results of this study showed that the owner-managers of four of the SMEs (3ISBMANUMED, 5ISBICTMED, 6KHITRVLMD and 8LHRMANUMED) were the most active and had a positive attitude toward the adoption of e-commerce. In analysing this information, this study has identified two individual contexts as determining factors: (i) owner-manager innovativeness and (ii) owner-manager and employee e-commerce and ICT knowledge.

8.4.4.2 Owner-manager Innovativeness

In this study, innovation refers to the ability of owner-managers to adopt innovative technologies – including e-commerce – faster than others. Previous findings indicated that owner-managers who participated fully in the decision-making process also controlled day-to-day management activities and administrative tasks (Demirbas et al., 2011; Shemi & Procter, 2013). In this study, owner-managers control their organisation's financial and HR and participate fully in administrative and financial activities. The innovation capacity of one of the co-owners of 2ISBTICKSML was quite obvious regarding the introduction of various technologies internally, including e-commerce. He is familiar with e-commerce technologies and is motivated by his interest in technology. He deals with the troubleshooting of the ticketing software and other technical problems related to the electronic system. However, despite this, there have been delays to the adoption of any technological change as the other co-owner advised staff to rely on the manual system and traditional sales methods. Whereas, in 1KHIMANUSML, although the owner-manager controls the financial activities, his lack of e-commerce knowledge was considered a major barrier for the rapid adoption of e-commerce.

Driven by a keen interest in the development of e-commerce, the owner-manager of 3ISBMANUMED supported the organisation in the development of e-commerce; something which has been confirmed by other managers as study participants. They cited that owner-manager provides support and has a positive attitude towards adopting innovation within the company's available latest ICT infrastructure. One significant contribution of the owner-manager was the development of the organisation's website, which had not been fully developed in previous years. However, currently the adoption of e-commerce innovation is not going beyond the website. Owner-managers of other SMEs such as 4ISBTRVLSML, 7LHRHTLSML and 2ISBTICKSML were somewhat reluctant to embrace innovation faster than other companies in the same social context. The findings of this study revealed that the top management of these companies felt that if e-commerce was adopted as an innovation, their control over business decisions would become limited. This was because they did not know the benefits of modern innovative technologies and did not encourage the idea of e-commerce in the organisation and, therefore, continue to rely on conventional methods.

A participant from 5ISBICTMED felt that the owner-manager had innovative ideas for retaining and attracting new customers through the use of keyboard technology. The manager introduced the ERP management system into the organisation by providing technical assistance, and even developed an e-commerce web platform to receive electronic transactions. However, due to other factors related to the TOE framework, the subsequent adoption of e-commerce has not progressed any further. The owner-manager of 8LHRMANUMED took the initiative to digitise the organisation. He understood that to become a market leader, it was necessary to adopt the technological changes practised at the international level. The owner and his team have made efforts to integrate a robust system into the organisation to manage critical information for decision making. He was on a mission to use an electronic data interchange system that competes for a production system. However, the owner pointed out that for the implementation of the electronic data interchange system in the organisation, the staff had to have a computer training and have enough computer skills, thus demonstrating their willingness to adopt innovation faster.

Therefore, the results of this study reveal that the top management of the four medium SMEs are more innovative in relation to the quicker adoption of e-commerce than the four small SMEs. It is found that owner-managers of the medium-sized business are more innovative and tend to look for a solution by changing the basic structure (where it is considered that the problem lies). The results of this study corroborate the previous findings of Al-Qirim (2007), Ghandour (2015) and Jude & Adamou (2018), who observed that if SMEs have innovative owner-managers, they are more likely to adopt e-commerce.

8.4.4.3 E-commerce and ICT Knowledge of Owner-managers

Previous findings suggest that the technical knowledge of owner-managers (and other staff) was another factor in the adoption of e-commerce in SMEs (Fink, 1998). To fully develop e-commerce applications in SMEs with the implementation of the latest ICT infrastructure, staff must have a practical and reasonable knowledge of new technologies. This will only be possible if they have sufficient computer skills (ICT skills) to make organisations aware of the technologies. Findings from this study have shown that owner-managers and other staff – particularly senior executives (who are more likely to be older) of the four smaller SMEs, are not well trained in computer applications. Thus, they do not have enough knowledge to use and exploit the technological devices which support e-commerce, which affects their commercial e-commerce capacity. Concerning education and awareness, when compared to the medium-sized SMEs, leaders within the four small SMEs do not have very good ICT skills and have limited knowledge of e-commerce technology. This is because they tend to be traditionally operated family businesses in which employees are generally less educated than perhaps they should be.

The analysis of the results further examined the views and attitudes of employees, demonstrating a strong link between knowledge and training of senior management and the adoption of e-commerce. Similarly, it seems that if owner-managers could be informed about the functions and benefits of e-commerce applications for their businesses, they might be more willing to adopt such technologies (Ghobakhloo & Tang, 2013). The cases in this study support this claim by stating that the lack of staff training in ICT was as a result of the lack of owner-managers own e-commerce awareness and computer experience. Instead of adapting to technological changes to improve their organisation, they are reluctant to adopt new technologies, or even to use computers, and prefer to work by hand. This reluctance to accept new technologies and that fact that traditional methods are effective, is a significant problem for SMEs in their development of e-commerce.

As noted above, the literature on ICT in SMEs reports a lack of detailed knowledge of e-commerce among the SME employees in developing economies. However, in this study, there is some evidence to suggest that the owner-manager of 3ISBMANUMED, along with other high-level managers, have contributed much to the adoption of e-commerce due to their knowledge of information systems. However, the adoption rate among the senior executives from other departments is still very low due to their lack of technical knowledge. The results of this study are consistent with those of previous researchers, who argue that knowledge of e-commerce and ICT ability is seen as a critical factor in the adoption of e-commerce in SMEs. For example, Ndlovu, Shumba, and Vakira (2018) found that the level

of ICT education of owners, managers and other employees had a statistically significant impact on the adoption of technological tools. The context of ICT training should, therefore, influence the adoption of e-commerce. Kenneth, Macharia, Ayodo, and Eunice (2009), and Kiplangat et al. (2015) also confirmed that in Kenyan SMEs, the ICT knowledge of employees has a significant influence on the adoption of e-commerce.

8.5 Role of Government

In many developing and developed economies, the government plays a vital role in the development of SMEs and helps businesses to use and adopt new types of technological equipment for the adoption of e-commerce (Nazir & Zhu, 2018). The government is also helping many SMEs to provide better ICT technology resources to improve technological activities and increase revenue; which in turn can increase and improve the country's economy (Al-Somali et al., 2015; Awiagah et al., 2016). A review of the literature found that the results were mixed. Based on the conceptual TOE framework of this study, one category (the role of the government) was to determine whether the GoP had played an essential role in the development of e-commerce as a new technology in the country.

The case results of this study revealed that there is a negative relationship between GoP support and the adoption of e-commerce by SMEs in the country. Data from participating SMEs suggested that of the GoP did play a role in promoting e-commerce to some extent, as it would promote economic development. An example provided was that GoP took the initiative to establish the National Incubation Centre and the Skills Development Programme in Islamabad, and plans to build more in different parts of the cities. SMEs were also part of the programme in order to take full advantage of IT services. However, the participants, including the owners-managers of all eight SMEs, pointed out that in order to further improve the overall structure of e-commerce in the country, the government needed to reduce the import taxes applied to the ICT infrastructure units. In addition, it was felt that they should also provide subsidies for SMEs when promoting innovative technologies in the country.

Participants also noted that despite the initiatives taken by the GoP, the interest of the government in the digitalisation of e-commerce remains one of the obstacles, as the government only began to take measures to manage technology policy after 2000; far later than other countries. In addition, there was no regulatory regime for the country to use e-commerce technology practices to remain competitive on a global scale. The governments of many economies are responsible for raising awareness and educating in e-commerce among SMEs. However, this study revealed that due to the many internal and external

barriers analysed in this study, the GoP does not pay enough attention or take initiatives in the ICT sector (including e-commerce) for the improvement of the economy.

External change agents that can influence the adoption of e-commerce include organisational advisors, government finance teams, external consultants, and e-commerce solution providers. The management of technology policy in the context of compliance was crucial as SMEs fear computer fraud. In the case of online security and customer confidentiality, electronic payments and payments must be protected, and a certified/standard payment gateway mechanism integrated with banks and e-commerce organisations introduced to promote online culture in the country. As part of this, banks should have complied with the policies and compliance prescribed by the MoITT to facilitate the e-commerce mechanism. As a lack of access to financial resources is a barrier faced by SMEs, the government should also provide financial assistance by offering subsidies and encouraging the banking system to provide financial support for SMEs.

These results are in line with those of Rahayu and Day (2017) who studied the factors of adoption of e-commerce by SMEs in developing countries, particularly in Indonesia. They reported that compared to SMEs in developed countries, the level of adoption of e-commerce by Indonesian SMEs is far behind. This situation certainly has implications for the government to increase its efforts by promoting effective programmes and initiatives to encourage the level of adoption of e-commerce by Indonesian SMEs.

8.6 Support of Local Business Institutes

In Pakistan, local business institutes include local industry associations, Chambers of Commerce and SME support agencies that work for the well-being of SMEs. There are specific associated benefits to being registered with local business institutes, but some legal paperwork is required to register the company in these institutes. This study results revealed that due to the strict policies of these institutes, many owner-managers of SMEs in the country are not interested in contacting the local institutes and adopting their policies. The findings of this study have further shown that smaller SMEs have no affiliation with an ICT or e-commerce institute that can help the organisation in their technological development. Also, data from the SMEs revealed that there were no appropriate government partnerships related to the private and public business sectors for the improvement of SMEs. Although some organisations and private associations work in the country, their ICT consulting services are not affordable for many SMEs. The medium SMEs in this study were registered members of local institutes but have not received any technological development support due to their size and limited income generation. As a result, the cases in this study indicated

that they continue to rely on traditional sales methods, including "word of mouth" without the support of local business institutes.

Kotelnikov (2007) provided some guidelines for local business institutes to provide better resources for SMEs in the development of e-commerce as new technology. He said that they could offer regional knowledge exchange and training workshops, provide financial support, help develop local capacity and organise technical cooperation agreements among SMEs in the region. Local industry associations can also leverage their existing membership base to disseminate information and create programmes, create more specific workshops for SMEs and highlight the specific benefits of the industry. Thus, they are a key local partner to encourage the adoption of e-commerce by the industry.

8.7 Revisited Conceptual Framework/Model Used in This Study

In the revised (also referred to as extended TOE model) framework, it was pointed out that the greater the focus on the adoption of e-commerce, the greater the benefits and capabilities that are acquired by a business. This study suggests that the greater the investment in technological and organisational capacity and resources – including technical, human and financial – the greater the business benefits. However, the results did not prove that higher rates of e-commerce adoption were related to a greater benefit or a successful application. In this study, there was no specific method, formula, model or framework between the adoption of e-commerce and the success of an SME that guaranteed automatic technological success. However, the framework/model can simply increase the success rate of adopting e-commerce applications in business. Most of the frameworks/models analysed only reflected the overall situation of SMEs while adopting innovations (including e-commerce) that could increase the level of e-commerce adoption at organisational levels.

Previous literature studies have shown that innovative technologies enable SMEs to take the first step towards e-commerce adoption. The analysis of frameworks/models has further shown that organisational, environmental and technological elements can influence the adoption or non-adoption of e-commerce as an innovation in SMEs. Also, many organisations could take maximum technological benefits after the successful integration of e-commerce and with the support of SME leaderships. Previous models/frameworks have also highlighted that the availability of latest ICT infrastructure units can bring positive technological change in this modern world and, therefore, could be useful for the successful integration of online business practises. These technological changes can be achieved with the support of local government.

These elements have been taken into account in the development of an extended framework/model associated with this study, which could affect the success of e-commerce adoption at different levels within each organisation. The amended conceptual framework/model developed in this study has been used to uncover the hidden factors influencing whether or not e-commerce is adopted in organisations. This new conceptual framework/model was developed after reviewing previous literature and gaining in-depth knowledge of the field of e-commerce and other areas of information science and technology in both developed and developing countries. In particular, the conceptual framework/model has been designed to present different themes with the main objective of providing answers to relevant research questions in the context of Pakistan's SMEs as a developing economy in the region of Southeast Asia (Chapter 1).

Within this conceptual framework, six themes were applied, summarised as follows: general characteristics and status of SMEs, availability and quality of the latest ICT infrastructure units, role of owner-managers and management characteristics, factors influencing the adoption of e-commerce, the role of government and the support of local business institutes. In order to understand the complete profile of the adoption of e-commerce, all these elements must be taken into account. As a result, the data presentation process and the analysis phases (Chapter 7) of the interviews with participants revealed several elements related to the adoption of e-commerce that affected the organisations. As a result, this revisited conceptual framework was used in the study to achieve the desired result using a repeated cycle of operations called an iterative analysis process between six categories of literature and in eight SMEs to find meaningful information about the under study phenomena (e-commerce), and then compare the information to achieve the results. Therefore, it appears that the six broad categories depend on each other to allow a complete combination of the factors of the general conceptual framework. These general elements were in themselves considered as an adoption factor and were therefore necessary to define the business adoption strategy. Thus, with the help of the revisited new conceptual framework, this study was able to provide answers to relevant research questions. This framework/model is presented in Chapter 9.

8.8 Summary

This chapter has dealt with the research results of this study by integrating the results of each SME (case) in a cross-case analysis and with the previous literature. This chapter discussion has shown that the environment of the current situation of SMEs – and the various e-commerce adoption factors – motivate and dissuade many SMEs from making e-commerce an innovation. Several technological, organisational, environmental and

individual factors related to owner-managers and management were examined, as well as their impact on each SME selected in this study. These factors are as follows:

- The availability and quality of the latest (internal) ICT infrastructure units,
- Slow internet,
- Power outages,
- National (external) online availability,
- Online payment security and data confidentiality,
- The size and structure of the organisation (and insufficient financial resources and qualified HR),
- Lack of website and payment system,
- Traditional sales methods,
- Lack of consumer confidence in e-commerce and consumer preference for cash on delivery payments,
- Technological awareness and education of society,
- Lack of legal regulations on online payments,
- Unstable political and governmental situations for the implementation of technology policies,
- Corruption and favouritism of local commercial institutions,
- Lack of GoP support in adopting the e-commerce by SMEs, and
- The individual characteristics of owner-managers and management.

In the summary of these factors found in this study, it was shown that although the technological, organisational and environmental factors were widely known in the literature to affect SMEs in different economies while embracing e-commerce as innovation, their interactions, impact and their presentation in the SMEs of this study shows both similarities and differences. The availability of the internet and websites is considered a determining driver for some organisations, but no e-commerce activity has been found through online payment facilities available on their web pages. However, email communication via internet applications defined the e-commerce of the SMEs in this study. This chapter then addressed the different roles and support of the GoP and other local business institutions in supporting e-commerce by SMEs and other businesses in the traditional local context of Pakistan.

The final chapter discusses the final conclusions, contributions, implications, limitations and suggestions for future research related to the adoption of e-commerce by SMEs.

Chapter 9: Conclusions

9.0 Introduction

This study aimed to uncover the hidden factors associated with the adoption of e-commerce in eight SMEs within Pakistan's – as an example of a developing economy in the South-East Asia region. This chapter examines the conclusions made in relevant to the three research questions, the contributions (theoretical and methodological research) of this study, its limitations and finally, suggestions for future research.

9.1 Conclusions

Based on the findings and discussions in Chapters 7 and 8, this section concludes with an overview of the cases and how each research question can be answered.

RQ 1: What is the current situation of SMEs' e-commerce adoption in Pakistan?

It is concluded that in relation to e-commerce adoption as an innovation, currently Pakistani SMEs are not yet in a position to consider e-commerce as a new technology for their business activities. In order to consider and adopt e-commerce as a successful project, SMEs needed to have adequate and necessary ICT infrastructure across all departments to support e-commerce applications. However, this study concludes that the current situation is that the ICT infrastructure does not fully support a full range of e-commerce applications (hardware and software) in Pakistani SMEs. Further, small SMEs do not even have ICT departments to oversee e-commerce projects because of their informal organisational structures and a lack of skilled ICT employees. Docktor (2004) observed that the term "electronic preparation" represented the development of multilevel ICT infrastructure units involving different ICT activities in various departments of organisations. To succeed in e-commerce, SMEs therefore need to adopt and implement the necessary ICT infrastructure units (Lechman and Kaur, 2016; Touray et al., 2013). However, many Pakistani SMEs are still struggling to implement even a basic level of ICT infrastructure. Although the SMEs in this study have – to a greater or lesser extent – ICT units available, these currently do not support the projects and extended applications of e-commerce and are only used for daily business activities. Similarly, Molla and Licker's (2005) study of developing economies found that in order to connect ICT-based devices to manage the e-commerce process, an appropriate technological environment was needed within an organisation.

The current situation of SMEs also revealed that management control most of their organisational departments – including finance and HR – in conducting business activities. Thus, with a horizontal structure, the four small SMEs lack formal departments or sufficient administrative resources because they centralise decision-making with the owner-managers (Ghobakhloo & Tang 2013; Hyder & Lussier, 2016; Jude & Adamou, 2018; Oliveira et al., 2015; Rahayu & Day 2015). This is in line with the findings of Ghandour (2015) that insufficient (both in terms of quantity and quality) resources are a significant barrier to SMEs' adoption of e-commerce. These organisational constraints on financial, technological and HR often lead SMEs in developing countries to lag behind their counterparts in developed countries in relation to their adoption of e-commerce (Huy & Filiatrault, 2006). As a result, due to the lack of sufficient technological resources provided by owner-managers to their SMEs, the adoption of e-commerce is still minimal in these organisations. This study concludes that it is therefore essential that SME leaders combine their leadership resources with human, financial and technological resources throughout the e-commerce adoption cycle. (Al-Qirim, 2007; Ghobakhloo & Tang, 2013).

The current situation of organisations is also dependent on the use of communication technologies such as the internet and email services and the availability of the broadband internet for the successful adoption of e-commerce applications (Molla & Licker, 2005; Shemi & Procter, 2013). The SMEs in this study facilitate the use of email – connected to a slow internet – mainly as a means of communication for the realisation of commercial transactions. As a result, the use of internet-connected email is widespread in all SMEs. While medium-sized SMEs in particular rely heavily on email communication, most business transactions received by email remain in the form of offline payment methods such as wire transfers or cheque payments. As such, commercial activities remain aligned with traditional methods such as the telephone or mobile devices and fax machines. In investigating this aspect further, it was found that owner-managers felt that their employees and some of their business partners remained suspicious of internet technology; preferring to communicate over the phone, and were still reluctant to use internet-based messaging applications. UNCTAD's 2017 report indicated that for many people in developing economies, mobile phone networks were their only means of access to the internet and that consequently, they were essential tools for doing business over the internet, for empowerment and even financial inclusion. In addition, SMEs are used to sending quotes to corporate clients by email but continue to use traditional business methods to sell their products. Thus, the presence of functioning email accounts can be deemed critical for the company to be able to adopt e-commerce to receive orders and conduct online transactions.

The lack of a website is described as a critical issues for SMEs in Pakistan in relation to the adoption of e-commerce. The results of this study reveal that half of the participating companies did not rely heavily on online sales due to the availability of Web 2.0 tools such as Facebook, Twitter, YouTube, LinkedIn and Instagram. These social media pages help organisations market their products and services and receive orders over the phone without having websites. (ADB, 2018). Although some active websites are available in the medium-sized SMEs, their progression to the transactional stages of e-commerce has taken different paths (Karakaya & Shea, 2008; Rao, Metts, & Monge, 2003) and no e-commerce activity can currently be generated on these websites. As a result, no complete e-commerce transaction system was found. Further, commercial activity continues to follow the traditional methods (telephone or mobile devices, email and fax systems), as dictated by Pakistan's local commercial market and which is deemed most suitable for Pakistani consumers.

In previous chapters of this thesis (Chapters 1-3), it has been shown that Pakistan's economy is mainly composed of SMEs, and many policies have given a general perspective, orientation and definition of the general parameters of the economic activities within a macroeconomic framework. However, the focus of government remains on large companies and SMEs have been neglected despite being considered central to the economy – especially in certain areas (Subhan et al., 2013; Zafar & Mustafa, 2017). Therefore, the above conclusions in RQ 1 revealed that the current situation for SMEs in Pakistan is that they suffer from numerous weaknesses in their organisation and the wider political and business environment. This has limited their organisational technology capacity to adapt to the measures of economic globalisation introduced by developed and Western economies, and prevents them from taking full advantage of e-commerce and becoming part of rapidly expanding technology markets globally. However, the major contribution of SMEs and their importance for reducing unemployment in the economic activities of both developing economies and developed economies suggests that SMEs in the LDCs still have considerable potential for technological growth through technological regulation and the promotion of e-commerce services (Akugri et al., 2015; Fan, 2019; Keskin et al., 2010).

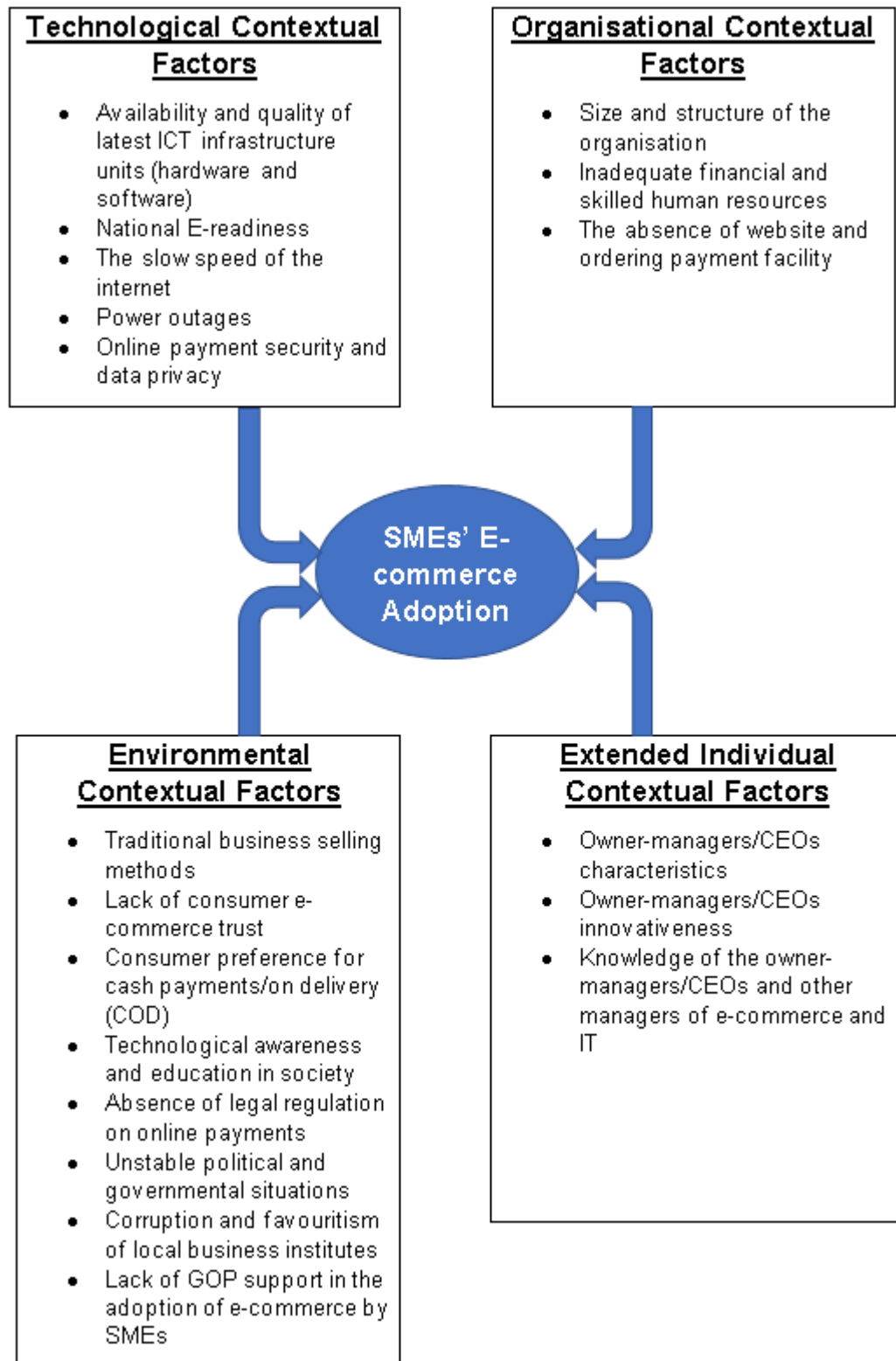
The current situation of poor e-commerce adoption rates for SMEs in Pakistan is seen as a significant problem for many government agencies and other local institutions. However, it is concluded that the findings of this study reveal a lack of coordination between ministries and SMEs as well as the lack of a mechanism for regular exchange of information between local businesses. This limits the development of mutual e-commerce capabilities to adapt to the latest technological developments.

RQ 2: What are the different e-commerce adoption factors in the SMEs of Pakistan?

The second research question aimed to identify different technological, organisational, environmental and extended individual factors within SMEs and to provide detailed information on the progress of SMEs in the adoption of e-commerce. When adopting e-commerce, several factors and barriers influenced the progress of each organisation were identified and these are summarised in Figure 27 which illustrates the new extended TOE framework. As noted previously, the purpose of this study was to identify the factors associated with the adoption of e-commerce by SMEs at different levels of organisations. This study therefore examined the adoption of e-commerce through the extension of the TOE model by the addition of an extended individual category. The extension of the TOE model focused on assessing the adoption and development of e-commerce and the impacts of e-commerce at the individual level of each organisation. This new extended TOE model will help to provide a guide for decision-makers in Pakistan's local business environment to increase the use of e-commerce in Pakistan and similar commercial environments in the Southeast Asian region.

In terms of technological factors, this study has identified five factors as follows: (i) the availability and quality of the latest ICT infrastructure units (hardware and software), (ii) the national online readiness capability, (iii) the slowness of the internet, (iv) power outages, and (v) online payment security and data privacy. All study participants noted that for the successful integration of e-commerce technologies into each organisational service, the availability and quality of the latest ICT infrastructure units were essential. However, Pakistan's poor external ICT infrastructure – including hardware and software tools, and a weak banking network in the country and their communication and security services – is a significant obstacle to the adoption of e-commerce. The slow internet connection (Kabango & Asa, 2015; Molla & Licker, 2005; Shemi & Procter, 2013) and power outages (Hyder & Lussier, 2016, Mutula & Van Brakel, 2007; Oreku et al., 2009; SMEDA, 2017; Uzoka et al., 2007) were additional technological challenges that affect the effective implementation of the latest ICT devices supporting e-commerce. Similarly, the monopoly of private and public ISPs and telecommunications authorities resulted in high costs and low levels of internet connectivity.

Figure 27: New Extended TOE Model For SMEs' E-commerce Adoption in Pakistan



Source: Author

Concerning organisational factors, this study identified that the following three factors: (i) size and structure of the organisation, (ii) the lack of qualified HR and financial resources, and (iii) the lack of a website payment mechanism have a significant impact on the ability to adopt e-commerce in Pakistan's local business environment. It is also noted that these factors are interlinked. For example, the smaller SMEs with flatter structures find the adoption of e-commerce more difficult (Ghobakhloo & Tang, 2013; Kartiwi et al., 2018; Rahayu & Day, 2015; Simpson & Docherty, 2004). Further, because these smaller, flat structured SMEs are predominantly family-run and most decisions are in the hands of owner-managers. This, in turn, affects the financial and human capacity of businesses to make decisions in relation to the adoption and implementation of innovations such as e-commerce on a larger scale (Ghobakhloo & Tang, 2013; Oliveira et al., 2015; Rahayu & Day, 2015). The lack of a website with access to e-commerce via an online payment system is also an organisational obstacle to receiving online transactions via the e-commerce channel (Al-Alawi & Al-Ali, 2015; Jeyaraj et al., 2006).

In relation to the environmental context, the following eight factors were identified as part of this study: (i) confidence in traditional business methods, including face-to-face contact, owner-managers and employees' relationships with customers, as well as word of mouth to access e-commerce, (ii) lack of consumer trust in e-commerce, (iii) preference for cash on delivery payment (iv) lack of technological awareness and education (v) lack of legal framework, (vi) unstable political and government situation, (vii) corruption and favouritism, and (viii) lack of GOP and local business institute support. As with the other contexts, the environmental factors are interrelated. For example, this study shows that the problem associated with consumer preference for offline cash payments on delivery when using B2C e-commerce is the lack of consumer confidence in e-commerce (Aziz, 2017; Hanif, 2018; Khaskheli & Jun, 2016). This is related to Pakistan's local business environment, in which business is conducted in traditional ways and actively avoids trading through e-commerce channels due to low consumer technology awareness to exploit e-commerce applications (Chatzoglou & Chatzoudes, 2016; Durbhakula & Kim, 2011; Lawrence & Tar, 2010; Lim et al., 2018; Martinsons, 2008; Pease & Rowe, 2003; Shemi & Procter, 2013). Further, the GoP has not implemented appropriate e-commerce policies or legal frameworks or regulations (Scupola, 2009) that would stimulate the adoption of e-commerce in the business environment of Pakistan. This critical factor has delayed the adoption of e-commerce services in the country.

Concerning the extended individual context, three factors were identified, as follows: (i) the overall characteristics and role of the owner-managers, (ii) owner-manager innovation capacity and (iii) owner-managers (and other management members and employees) ICT

knowledge and e-commerce awareness. These issues have been raised in previous studies, for example, Bhutta et al. (2008) recommended that owner-managers and other employees of SMEs should receive adequate training if they wish to adopt innovations and become motivated to implement e-commerce applications in their organisations. This study shows that in all the SMEs, senior executives and other administrative staff were not only currently unable to communicate by email but were also reluctant to improve their skills by keyboard. In order to access international digital markets, it is essential that employees of SMEs at different levels communicate electronically and do their best to carry out their e-commerce activities. Therefore, ICT training and a certificate or diploma in computer studies should be made available in Pakistan to new entrepreneurs, senior managers and other employees to equip them with the necessary skills for adopting e-commerce in their SMEs. In particular, the adoption of e-commerce had been influenced by the experience and know-how of owner-managers and senior employees in the use of the latest ICT infrastructure (hardware and software) (Cloete et al., 2002; Raza et al., 2018) and this ICT knowledge was found to be the most critical individual factor associated with e-commerce adoption in this study. It is therefore concluded that those SMEs which are controlled by owner-managers and senior managers who have ICT computer-based experience in using ICT devices and are computer literate, tend to be more likely to adopt e-commerce. This conclusion supports the findings of Al-Qirim (2007) and Nazir and Zhu (2018).

9.2 Research Contributions

This study contributes significantly to the body of knowledge and makes theoretical contributions through the development of a new extended conceptual framework (Chapter 5). This was developed from the literature on the adoption theory of e-commerce which identified six categories of literature that were developed further to provide answers to relevant research questions. In addition, the extension of the TOE framework (Tornatzky & Fleischer, 1990) (Chapter 5) with an additional individual factor category allowed this study to identify the previously under-researched individual characteristics owner-managers and other SME employees in relation to the adoption of e-commerce.

In terms of its contribution to the body of knowledge, this study provided an in-depth understanding of the different situations of e-commerce, the processes and phases of implementation of ICT units and employee's motivation while adopting e-commerce applications by studying eight SME cases from four sectors (manufacturing, hospitality, tourism, and ICT hardware companies) in three cities (Karachi, Islamabad and Lahore) in Pakistan. By analysing each of the SMEs selected in this study, an understanding was developed as to how and why selected organisations adopted current innovative

technologies, including e-commerce, and what problems may arise if such innovations are implemented in the business processes of the organisation with or without the availability of the latest ICT infrastructural units. The majority of previous studies e.g., (Dar et al., 2017; Hyder & Lussier, 2016; Subhan et al., 2013; Syed & Shaikh, 2012; Zafar & Mustafa, 2017) have focused on the general characteristics of adoption of technology by organisations and describe the issues related to the growth of SMEs in the economy. However, none of these studies have provided a clear picture of e-commerce adoption through a more comprehensive view of each SME. As a result, this study has provided a better understanding of e-commerce from a management perspective to advance e-commerce adoption (as a studied phenomenon) at different levels of each organisation.

Further, while previous research on e-commerce has been conducted across different regions of both developed and developing economies (see Chapter 4), less attention has been given to developing economies in South Asia (Lawrence & Tar, 2010; Nazir & Zhu, 2018; Seyal et al., 2004). Thus, the results of such studies cannot be applied directly to the Pakistani context as a developing Southeast Asian economy. This is because – as Abou-Shouk et al. (2013), Aljowaidi (2015), Molla and Licker (2005), and Lawrence and Tar (2010) stated – developing economies are extremely "heterogeneous" in terms of their political systems, economy, ideology, demography, culture, race, etc. Consequently, each country has a unique situation that requires culturally-specific and adoption-specific e-commerce strategies. For example, Pakistan's economy differs from that of other developing and LDCs in the region in their geographical, social and cultural contexts, economy, infrastructure, and government. Therefore, this study has contributed to the research base by enriching the knowledge base on the subject of e-commerce – and its adoption – within SMEs in the context of Pakistan as a developing economy of Southeast Asia. It also provides a better understanding of e-commerce innovation as a phenomenon of technology adoption in the various SME sectors, which had not previously been studied in detail. The context specific development of previously identified technological, organisational and environmental factors, coupled with the investigation and development of an extended individual factor, allows a better understanding of the developments of e-commerce across these organisations. In addition this study has highlighted the critical role that cultural aspects play for organisations that adopt e-commerce. For example, the perception of society when making decisions about online shopping in Pakistan, which is different from other developing and developed economies. Thus, this study extends the literature base on e-commerce by providing more knowledge about cultural practices and their impact on the cultures of different organisations and the intention of people to use e-commerce technologies to undertake day to day business activities.

As a result, the technological, organisational, environmental and individual factors of the SMEs selected in this study are unique and appropriate in the context of Pakistan. Therefore, the information collected from the participants for this study to determine the factors of the adoption of e-commerce phenomenon can be used as a reference and can also be applied to other sectors. In Chapter 6 it was noted that Yin (2018) argued that external validity is the extent to which the results of the case study can be generalised analytically to other situations. In this multiple case study, information obtained from the eight SMEs allows for the development of more substantial evidence base rather than using a single case study. Therefore, the results of this research are valid for the generalisation of other SMEs in Pakistan, since Pakistani SMEs are homogeneous and share many common characteristics. As a result, this study could also be applied elsewhere within Pakistan.

9.2.1 Theoretical Contributions

The most important contribution of this research is an experimental contribution to study the general concept of Pakistani SMEs while adopting innovation in e-commerce at different levels of organisations. This research is viewed as an essential extension of the adoption of e-commerce studies, which had focused primarily on developed economies in South Asia and other regions (Chapter 4). Therefore, as discussed in previous chapters, this research has theoretically contributed to the body of knowledge by examining six significant issues/categories of literature (Figure 18) and extension of the TOE framework for the analysis of each SME as an organisation to determine the overall adoption of innovation in the field of e-commerce in various SMEs of a developing economy. Also, the research uses existing literature to present e-commerce adoption models in selected SMEs. The theory of the extent of use of e-commerce has been used in the development of six conceptual categories/issues from the earlier literature of developing and developed economies (Chapter 4), which enables research questions to be answered.

It has been observed that studies such as those by Chen et al. (2013), Kozma and Vota (2014), and Lechman and Kaur (2016) only examined the general characteristics of SMEs and did not discuss the organisation's overall position on the adoption of e-commerce by analysing different hierarchical stages of each organisation. Hence, this study examines the current situation and the characteristics of each SME for the adoption of e-commerce innovations in the four sectors of the developing economy of Pakistan, within Southeast Asia. Therefore, this study contributes to theoretical knowledge by adding an additional concept to an existing model and revealing current trends in the hierarchy of eight companies to adopt e-commerce in Pakistan. This study also highlights the general situation

of each business in e-commerce development after analysing the current management structure and the various departments.

The results of this research also investigated the overall quality of ICT infrastructure units available in SMEs' facilitated e-commerce projects. Compared with developed economies, a review of the literature (e.g., Al-Qirim 2007; Ghandour, 2015; Tan et al., 2007) confirmed that the current state of ICT infrastructure is not very good in most developing economies. The findings of this study corroborate this evidence, revealing that the overall quality of ICT units available are out of date and require particular attention and upgrading to support the latest technologies. The theoretical contribution here is that the research results have been integrated with, and have added to, an existing model and provide specific information on the overall quality of the ICT infrastructure within eight SMEs in Pakistan.

This is one of the few studies that has identified the critical role of owner-managers and other departmental managers and senior executives in the use of e-commerce in various SMEs in Pakistan as a developing economy in Southeast Asia individually. Only one study on the determinants of e-commerce in Pakistan has been conducted (Seyal et al., 2004) and that found that the role of management and support for the adoption of e-commerce was not considered important and did not have a significant impact on e-business adoption by SMEs. However, in this study, the role of SME management, including owner-managers and other managers and senior employees, is identified as being essential and has a direct impact on the overall development and adoption of e-commerce. This study shows that the role of owner-managers and their management characteristics can positively (or negatively) contribute to the adoption of e-commerce in developing economies. The SME e-commerce environment also illustrates how characteristics, such as proprietary owner innovation and e-commerce awareness among executives, are integrated into the development of e-commerce applications. The global e-business experience and the knowledge of owner-managers in four of the SMEs in this study (3ISBMANUMED, 5ISBICTMED, 6KHITRVLMD and 8LHRMANUMED) helps advance the use of e-commerce as a new technology in their organisations. Therefore, the theoretical contribution is additional research which could lead to adaptation of the theory. This study identifies that the adoption of e-commerce in Pakistani SMEs is dynamic and that where enthusiastic owner-managers and other employees are interested in e-commerce and are willing to get involved in e-commerce projects, this increases the chances of e-commerce adoption and success.

Insights from this study also showed that the factors that influence the full uptake of e-commerce and the effective use of the latest ICT infrastructure devices (hardware and software) in each country are different, although some factors may be similar. As mentioned

in the literature review (Chapter 4), previous studies have examined e-commerce adoption factors in both developing and developed economies. However, there has been less focus on the adoption of e-commerce at the technological, organisational, environmental, and extended individual level in SMEs across various sectors in the context of Southeast Asian economies such as Pakistan (Hyder & Lussier, 2016; Lawrence & Tar, 2010; Seyal et al., 2004). Therefore, this study reveals (Chapter 7 and 8) extended TOE factors for each SME at different levels of that contribute to the knowledge of the contextual factors relating to SMEs in the context of Pakistan. Some of the extended factors are not entirely new but are presented differently and depend on the current situation and the characteristics of the eight participating SMEs. This study also helps to examine the factors related mainly to the perception of Pakistani consumers and their organisations regarding the use and adoption of e-commerce services, from the perspective of the extended TOE framework, and adds that factors related to e-commerce adoption in eight SMEs is continually evolving as a phenomenon that is summarised in the Karakaya and Shea (2008) statement that "e-commerce is a moving phenomenon, like a train". The theoretical contribution here is that effort has been made to add to theory and not just verify existing theory.

Many studies in both developing and developed economies have highlighted the positive or negative role of governments in successfully implementing the latest technologies in their countries for local business development. It was also noted that, despite government's efforts and initiatives to support these economies, the literature on its support for the adoption of e-commerce by SMEs is still far behind. This is particularly true in the developing economies of the world (Al-Somali et al., 2015; Awiagah et al., 2016; Martinsons, 2008; Scupola, 2003, 2009), which also motivated this study. Therefore, this study examined the role of e-commerce adoption through the participation of local and provincial governments working in different cities of Pakistan to enrich the literature. This research adds to the existing body of knowledge that highlights the role of government and its technology policies that affect SMEs in the adoption of e-commerce and thus its theoretical contribution is additional research which could lead to adaptation of the theory. The results revealed that there is little government support for the adoption of e-commerce by SMEs and that they could provide additional information on the impact of e-commerce. Thus, the government should facilitate this by offering subsidies to SMEs to enable them to update existing ICT infrastructure. Further, government should work with commercial banking institutions to facilitate SMEs by granting low-interest credit/support for the adoption and use of e-commerce applications.

Some of the problems of technology adoption cannot be solved without the support of local governments and private institutes, including contracting agencies and regulators (Nazir &

Zhu, 2018). No previous study on the adoption of e-commerce in SMEs has empirically examined the role of local business institutes that support SMEs and this study has revealed the benefits of using e-commerce for various organisations in the context of Pakistan's local business environment. Therefore, this study is considered one of the few studies that have identified the role and support of local business institutes for SMEs in developing economies. Thus its theoretical contribution is additional research which could lead to adaptation of the theory. This research contributes by focusing on local business institutes to help Pakistan's SMEs adopt e-commerce as new technology. These results indicated that there is a broader view of the magnitude of the problems and barriers associated with the development of e-commerce and the consolidation of the challenges that are affecting the adoption of e-commerce by SMEs in the context of the local business markets.

Following the extension of the TOE framework, this study also shows that the extended TOE model applied in this study can improve our understanding of the different factors and barriers to effective e-commerce adoption in developing economies. This may also help decision-makers in these countries (both at organisational and governmental level), especially in the context of Pakistan, to implement more effective innovation strategies to successfully adopt e-commerce through the availability of the latest ICT infrastructure units. However, this framework presents many dissimilarities. First, the framework used in this study was to analyse the data according to the four broad categories of the extended TOE framework (technology, organisation, environment and extended individual) in order to determine the factors at the organisational level. The contextual factors identified in this study are somewhat different compared to other frameworks that were primarily designed using theories at individual levels. These include such as the Technology Acceptance Model, Diffusion of Innovation Theory and Unified Theory of Acceptance and Use of Technology. However, the TOE framework adopted in this study helps us better understand how innovative technologies, such as e-commerce are being adopted, implemented and used as an e-commerce strategy at the organisational level. Second, many adoption frameworks and models have been applied and used in the studies of developed Western economies and cannot be directly applied to LDCs (Al-Qirim, 2007; Gunasekaran and Ngai, 2005; MacGregor & Kartiwi, 2010; Molla & Licker, 2005; Zhu & Kraemer, 2005). Therefore, this extended TOE framework was developed in this study from empirical data collected in a developing economy, Pakistan, to help and appreciate more developing economies around the world.

9.2.2 Methodological Contributions

This study also contributed methodologically when considering interpretive approaches for multiple case studies, since most of the previous studies focused on other methodological approaches rather than interpretative case studies. The interpretive approach of the multiple case studies in this study contrasts with the majority of previous studies on the same topic. Examples of other approaches include descriptive methods (Abrar-ul-haq et al., 2015), structural analysis (Zafar & Mustafa, 2017), analytical methodology (Dar et al., 2017) and descriptive statistics (Seyal et al., 2004). This research distinguishes this approach by proposing a different methodological approach. Therefore, in Pakistan, no previous e-commerce adoption study has examined the different factors of e-commerce adoption across sectors of SMEs through the application of interpretative approaches based on multiple case studies. After applying this research strategy, this study helps to provide detailed information and a clear understanding of the e-commerce adoption process in the various sectors of SMEs in Pakistan. Further, Antwi and Hamza (2015), Eisenhardt (1989), Merriam (2009), Ponelis (2015) and Yin (2009) all confirmed that multiple case study approaches improved the construction of the theory and built it, which is particularly useful in areas where theory and conceptual frameworks are inadequate. Therefore, this research was based on the interpretive paradigm using multiple case studies (eight) from both small and medium (four of each) SMEs.

Moreover, given the need to understand the context and natural environment that affects SMEs in Pakistan, the interpretative approach seems to be the most appropriate for this study. Through such an approach, this study has followed different ways of understanding the concept of e-commerce and how it should be adopted by each organisation to carry out its daily activities. Therefore, an interpretative approach to the case study was considered the best approach to meet the research objectives and questions of this research. Thus, this research provides a methodological contribution by allowing a much broader engagement with the participants during the data collection phases to study the different problems of adoption and development of e-commerce in eight SMEs in Pakistan. However, there is an exception for SMEs in the manufacturing, hospitality and tourism sectors where the owner-managers were constrained by their limited availability. To overcome this problem, additional telephone interviews were conducted with owner-managers and other managers and employees to gather more information that was missed during personal interviews. This research study also contributes methodologically in terms of how the adoption and development of e-commerce occurs in the eight SMEs, which were supposed to evolve naturally as a process. During the personal and telephone interviews, it was decided to interact with the participants as much as possible to facilitate the flow of

information and understanding of the research context. This was done only after the application of the interpretive multiple case study using data collection methods such as personal and telephone interviews, website and documentary content analysis and subjective observations.

9.3 Practical Implications

This study examines the difficulties faced by SMEs in adopting e-commerce in the local business environment of Pakistan, using the interpretive paradigm approach. The research approach focused on the sociotechnical context prevailing in the organisations at the time of the study. SMEs had different levels of ICT input and appreciation concerning e-commerce adoption and its implementation in various industry. However, it is necessary for SME owner-managers, new entrepreneurs and governments officials to be well informed about the innovations such as e-commerce and how they could offer business value to their organisations.

In relation to practical implications, the expanded framework developed and applied in this study can help SMEs and organisations in other sectors of Pakistan and the Southeast Asian region to identify individual factors that influence e-commerce adoption. Specifically, the characteristics of owner-managers and other employees that have motivated the successful adoption of e-commerce before implementation, which can increase the technological awareness of owner-managers and new entrepreneurs interested in adopting new innovations, such as e-commerce. In addition, the fact that consumers are less likely to use digital online payment channels, such as credit/debit cards and bank transfers, hinders the use of e-commerce services due to a socially conservative online purchase and a lack of trust in e-commerce applications. At this point, government financial institutions, including public and commercial banks, and organisations from different online sectors must work together to solve these problems to create an e-commerce platform by providing an online payment mechanism to potential online and offline consumers. This is especially true for the Pakistani population because Pakistan is currently one of the countries in the world whose population is mainly “young”; with the bulk of the youth population being familiar with Facebook and other online services and familiar with technological innovations.

The individual factors expounded in this study have stressed the importance of the owner-manager leadership and management's decision to adopt e-commerce as the main drivers for the full development of the e-commerce process in SMEs. This study demonstrates a significant relationship between these characteristics and the adoption of e-commerce, and concludes that individual characteristics have an impact on the adoption or otherwise non-

adoption of e-commerce. Without the computer knowledge and commitment of senior management and lower-level executives in SMEs, e-commerce will not be successfully adopted or implemented. The results of the study could suggest to owner-managers that they need to provide employees at different levels of management with both basic and advanced computer training on the use of the internet and messaging applications (email). In addition they encourage employees to work on keyboard devices to become familiar with new technologies which can reduce the level of complexity that they may face when using them. This will only be possible if organisations in developing economies have sufficient financial resources to be able to purchase and install the latest ICT infrastructure units (hardware and software) that will assist organisations in embracing e-commerce fully.

The use of Web 2.0 tools for SME marketing capabilities has been recognised as having a significant positive relationship with the adoption of e-commerce in this study. However, this study also shows that most SMEs in various sectors (including small manufacturing and tourism and ticketing) are in the initial stages of e-commerce adoption, which could explain why SMEs do not have an active online website and cannot use it as an e-commerce tool for marketing and receiving orders online. It is therefore necessary that owner-managers of SMEs focus on developing the necessary ICT capabilities by developing active websites. This will allow them to market their products and services online, as well as to receive commercial transactions by providing payment facilities on the website for potential customers. Thus, they will move from the first level to a higher level of e-commerce adoption.

Also, for the management of the organisation, a clear e-commerce adoption plan should be developed and implement; consistent with the company's technology strategies and policies. With a clear plan, organisations can enhance competition in the local business environment and help business partners implement this technology. Developing countries' owner-managers can also learn from the different e-commerce adoption scenarios of developed economies by comparing their e-commerce adoption efforts to improve their business processes. Owner-managers are also encouraged to participate in technology seminars and industry forums. Through such interaction, they will learn from – and interact with – industry leaders and other technology consultants to improve the e-commerce environment and technological situation of their organisations.

The study also informs government authorities of the need to develop appropriate e-commerce laws and policies for SMEs in developing economies. In Pakistan, no permanent e-commerce policy currently exists to support the development of SMEs in various sectors. To facilitate this, this study also provides the government with information to make it easier

for SMEs to adopt e-commerce and provides extensive information and a networking platform for improving and expanding the SME knowledge base. Government institutes, including SMEDA and other private agencies, should organise international conferences, seminars and workshops on e-commerce and ICT usage so that SMEs can understand and benefit from e-commerce phenomena in line with international standards. Further, the GoP – along with other organisations including banks – could establish and maintain the e-commerce infrastructure needed by online customers to enable electronic payments to be made in the local business environment. In addition, the government could play a key role in regulating various cybercrime laws to provide a secure online transaction platform and protect online businesses and customers from card theft and hacking problems.

This study also provides useful guidance for policymakers which could help SMEs to ensure the successful adoption of e-commerce. Local business institutes and agencies could use the findings of this study to formulate e-commerce strategies to promote e-commerce as a new technological tool among SMEs. The results also provide information on the different applications of ICT and e-commerce that can be adopted to develop e-commerce in SMEs. The results show that SMEs in the hospitality sector is highly dependent on the latest ICT tools and external ICT expertise due to the limited budget of the organisations and the small size of the management; notably the poor quality of the ICT units. This situation may need to be revisited at the national level, as ICT skills are also lacking here. Indeed, most ICT consultants, vendors, and agencies that promote e-commerce software and tools could segment their market and develop new software to meet the needs of each market segment. Most importantly, ICT providers and consultants need to take into account the knowledge and experience of owner-managers in promoting their e-commerce products and services on a limited budget.

9.4 Limitations, Direction of Future Research and Strategies to Develop E-commerce

The results of this study revealed the major technological, organisational, environmental and individual factors of the extended TOE model that contribute to the successful (or not) adoption of e-commerce innovations in SMEs within Pakistan – a developing economy of the Southeast Asian region. However, this research does have several limitations that will now be discussed.

9.4.1 Limitations and Direction of Future Research

First, this study is limited due to Pakistan's business environment and general economic and government instability. For example, out of the 16 SMEs initially contacted, only eight responded and the rest showed a lack of interest in participating in the research. A request to participate in the study was sent prior to the data collection phases and it was interesting to note that a number asked for financial incentives and sought permanent jobs in order to participate in the research. This information was not included in this study at any stage of the data collection because the participants did not sign the consent forms and, as a result, these participants and information were excluded from the study.

A second limitation relates to information provision. A cover letter was sent out with an extensive questionnaire explaining that the study researcher was collecting data from outside the country. As such, respondents raised concerns about providing information on the role of government and relevant ministries in the adoption of e-commerce. At the organisational level, the ease of access to relevant information about the phenomenon under study is another limitation. Most of the management staff, including senior and junior management, were concerned about providing information against their owner-managers within organisations as they thought that if this information got back to them, they could be dismissed from their work. To overcome this problem, the researcher confirmed (through consent forms) that the information collected during the interviews would only be used for research purposes and that only the researcher and supervisors would have access to the information provided.

Thirdly, the study is limited in that it includes and analyses only eight SMEs in three financial cities in Pakistan (Karachi, Lahore and Islamabad) and from four sectors: manufacturing, hospitality, tourism, and ICT hardware. Therefore, other future studies could include other SMEs from different rural areas of Pakistan to further explore the role of government and its motivation to help other SMEs in their context. In addition, it would be interesting to compare the results with those of other developing economies and to be able to generalise them to other industries. Further, this study broadened the scope of the TOE framework (Tornatzky & Fleischer, 1990) to look for other individual factors among owner-managers and other management employees who have demonstrated a significant relationship between the individual characteristics and adoption of e-commerce in SMEs. Further research is therefore needed to extend the TOE framework in other contexts, including developing economies, to better understand the roles of owner-managers and management, while integrating e-commerce as a new technology in their SMEs. A

quantitative study could also be conducted in the context of Pakistan to validate the findings of the eight SMEs that participated in this study.

9.4.2 Strategies to Develop E-commerce Adoption

This section provides information on RQ 3 and proposed strategies to improve e-commerce adoption in Pakistan. The strategies can be described in two ways: (i) the role of government and the readiness of local business institutes and (ii) the role of owner-managers and the readiness of SMEs themselves.

The findings of this study help identify the most critical determinants affecting SMEs in adopting e-commerce as a new online technology in the country. As discussed in previous sections of this chapter, there is a lack of government policies on e-commerce coupled with a lack of support from local business and financial institutions as well as public and commercial banks. The results also indicate that the government's current role in the country is not significant in the promotion of e-commerce and that its efforts have been slow and insufficient to support SMEs at different stages. Therefore, the government and local business institutions must implement a permanent and effective e-commerce policy that can improve and accelerate e-commerce adoption rules and regulations to improve SMEs in all sectors. In addition, this will benefit individual customers who can fully participate in the opportunities generated through e-commerce in the country. In addition, the GoP may also need to develop a mechanism for the training of SMEs in all provinces of Pakistan to assist regional SMEs, and to provide information on the e-commerce and ICT systems at grass root levels. These training institutes for e-commerce and ICT can only be implemented with the collaboration of both public and private bodies and other international agencies and non-governmental organisations to ensure that SMEs in Pakistan are up to date and fully developed according to international e-commerce standards.

A general recommendation and strategy that applies to all SMEs are that owner-managers must examine the various factors of adoption of e-commerce hidden in their business processes to make the right decisions about the development of e-commerce. This is because the different SMEs have their own particular needs for e-commerce (Stockdale & Standing, 2006) and the circumstances that prevail in SMEs interact differently with technological and environmental factors (Martinsons, 2008). SME leaders should be aware of the developments in e-commerce and should not resist the temptation to explore new technological innovations for global e-commerce (Shemi & Procter, 2013). Due to the importance of the owner-manager role in the adoption of e-commerce among SMEs in Pakistan, it is essential to develop the characteristics of owner-managers within companies and identify and utilise the role of those owner-managers who can encourage or discourage

the adoption of e-commerce. This is important to prepare and qualify these owner-managers to take a step towards more sophisticated e-commerce initiatives (Al-Qirim, 2007).

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Appendix A: Literature Review on E-Commerce Adoption

Factors in Developing Economies

Authors	Developing economy	SME sectors	Factor Findings
Kapurubandara and Lawson (2008)	Sri-Lanka	Various	This study presented a model of obstacles to the adoption of ICT and e-commerce based on the results of an exploratory pilot study, a survey and interviews with an SME intermediary organisation. The various factors identified as causes of reluctance can be broadly categorised into internal and external barriers. A majority (88%) of respondents indicated that lack of awareness was the most significant barrier. Inadequate telecommunication infrastructure was chosen by 83% of respondents and was the third most cited obstacle for those most advanced in the use of ICTs – using email and the internet, which are more likely to have encountered problems. The unstable economy, political uncertainty, lack of time, channel conflicts, lack of information on e-commerce and lack of access to expert assistance, were cited as obstacles by 70% of respondents.
MacGregor and Kartiwi (2010)	Indonesia and Sweden	Various	This paper examined the correlation and underlying factors of barriers to e-commerce (as perceived by owners/managers of SMEs) in a developing economy (Indonesia). Researchers compared them with the perceptions of SME owners/managers in a developed economy (Sweden). The study showed that there are differences between groups and priorities in barriers to e-commerce between the two sites. Most important, however, was the conclusion that Swedish respondents were more concerned about technical issues than Indonesians more about organisational barriers.

Authors	Developing economy	SME sectors	Factor Findings
Uddin and Bose (2013)	Bangladesh	Various	This study sought to identify the factors that contribute to the success of SMEs using a causal model. Data were collected from smallholding owners in Khulna city, a divisional city of Bangladesh. A total of 195 interviewees were finally interviewed for the study. Several selected factors generally affect the success of SMEs in the previous literature. The company's business plan, distribution channel, management skills and government support are considered statistically significant in determining SME success.
Ghobakhloo and Tang (2013)	Iran	Small Businesses	The purpose of this study was to develop an integrated e-business adoption model for small business. Perceived benefits, perceived compatibility, perceived risks, perceived costs, and innovation were identified as important determinants of the decision to adopt e-commerce.
Shemi and Procter (2013)	Botswana	ICT, Hospitality and Tourism	The most common challenge faced by SMEs was the supplier/customer preference for a traditional way of doing business. This was followed by the slowness of the internet (four SMEs). Other problems were a preference for personal contacts; lack of skilled labour; recruitment and acquisition costs for qualified staff; internet operating costs; the recession; lack of regulatory framework; customer preference for feeling and touching products; lack of ICT knowledge; lack of owner-manager strategy and perception, and lack of time to improve the website.
Al-Alawi and Al-Ali (2015)	Kuwait	Private SMEs	The study was based on a literature review focusing on factors influencing adoption and implementation of e-commerce. Results indicated that factors such as management support, perceived benefits and government regulations were positively related to e-commerce adoption in SMEs.

Authors	Developing economy	SME sectors	Factor Findings
Rahayu and Day (2015)	Indonesia	Various	A survey of 292 SMEs showed that the majority of them were still at an early stage of adoption of e-commerce. Marketing and purchasing and supply activities dominate their use of e-commerce. Extension of market reach increase of sales, improvement of external communication, improvement of the image of the company, improvement of the processing speed and increasing employee productivity are reported among the top six e-commerce benefits perceived by these SMEs.
Awiagah et al. (2016)	Ghana	Various	This research integrates technological, organisational and environmental determinism with social constructivism to create a practical framework for understanding the adoption of e-commerce by SMEs in Ghana. The results indicate that government support has the most significant direct impact on intentions to use e-commerce. Management support and the influence of favourable and regulatory conditions also play a crucial role in stimulating the adoption of e-commerce by SMEs.
Lussier, Bandara, and Marom (2016)	Sri-Lanka	Various	This research identified the three most potent determinants of the success or failure of small businesses in Sri Lanka. In order to be successful, first have a good business plan prepared at the initial stage of creating the business. Second, exercise professional financial control over the company and its activities. Third, have a good knowledge of marketing as well as practical experience.
Baidoun, Salem, & Omran (2018)	Palestine	Various	This study aimed to examine the success or failure factors of a small business in the West Bank. The results indicate that having adequate capital, keeping good records with financial controls, developing plans and obtaining professional business management advice are the most critical factors for the viability and success of small businesses.

Appendix B: Literature Review of TOE Factor Results in SMEs in Different Economies

Authors	Technology Innovation Adoption	Methods	Data Collection and Context	TOE factor findings
Seyal et al. (2004)	SMEs' e-commerce adoption	By using Statistical Package for the Social Sciences, 54 questionnaires were analysed to predict e-commerce adoption	A questionnaire was sent to 100 SMEs in the largest province of Pakistan, selected randomly by employee size from the catalogue of participating SMEs in an industrial exhibition	<p>Technological: Perceived benefits</p> <p>Organisational: Task variety, organisational culture, management support and motivation to adopt e-commerce</p> <p>Environmental: Government support remains the significant predictors of e-commerce adoption</p>
K. Zhu and Kraemer (2005)	E-business adoption	Structural equation modelling	TOE theoretical model was tested by using structural equation modelling on a dataset of 624 firms across ten developed and developing economies in the retail industry	<p>Technological: Technological competitiveness</p> <p>Organisational: Financial constraints</p> <p>Environmental: Competitive pressure and regulatory framework</p>
Scupola (2009)	B2B e-commerce adoption	Based on literature review, TOE model was proposed to find TOE factors influencing e-commerce adoption	A questionnaire based on the research model was developed, and face-to-face interviews were conducted in Danish and Australian SMEs	<p>Technological: Perceived benefits and quality of ICT infrastructure units</p> <p>Organisational: Top management support and adoption cost</p> <p>Environmental: Pressure from customers both from Denmark and Australia</p> <p>Individual: Owner-managers adoption characteristics</p>

Authors	Technology Innovation Adoption	Methods	Data Collection and Context	TOE factor findings
Ghobakhloo and Tang (2013)	SMEs' e-commerce adoption	Six hypotheses were derived and tested by hierarchical multiple regression and logistic regression analysis	A questionnaire-based field survey was conducted to collect data from owner-managers of 268 SMEs in Iran	<p>Technological: Perceived benefits and perceived compatibility</p> <p>Organisational: Limited financial budget to adopt ICT related technology</p> <p>Environmental: Perceived risk and security issues were found to be the significant determinants of the decision to adopt e-commerce</p> <p>Individual: Owner-managers innovativeness</p>
Al-Alawi and Al-Ali (2015)	SMEs' E-commerce adoption	Descriptive and inferential analysis was used, to analyse the collected data	Based on the TOE framework, data were collected from three main economic sectors in Kuwait	<p>Technological: Perceived benefits</p> <p>Organisational: Top management support</p> <p>Environmental: Government regulations were positively related to SMEs' e-commerce adoption</p>
Martins et al. (2015)	Information system outsourcing	Logistics regression used to test the hypothesis and TOE model	The online version of the survey was created and a questionnaire was sent to 600 SME participants	<p>Technological: Relative benefit</p> <p>Organisational: Firm size and top management support</p> <p>Environmental: Competitive pressure indicated as the main driver of ISO adoption</p>

Authors	Technology Innovation Adoption	Methods	Data Collection and Context	TOE factor findings
Rahayu and Day (2015)	SMEs' e-commerce adoption	To find the relationship between variables, multiple regression analysis used	TOE model developed, and eleven variables found and considered as TOE factors that influence SMEs' e-commerce adoption in 292 Indonesian SMEs	<p>Technological: Perceived benefits and technology readiness</p> <p>Organisational: Top management support</p> <p>Environmental: Based on the multiple regression analysis, none of the variables (customer/supplier pressure, competitor pressure and external institutional support) had a positive and significant correlation with e-commerce adoption</p> <p>Individual: Owners' innovativeness, owners' ICT ability and experience were the determinant factors that influence Indonesian SMEs in their adopting e-commerce</p>
Awa, & Ojiabo (2016)	ERP software adoption	Purposive and snowball sampling was adopted, and the framework was tested using logistic regression	The sampling frame was 373 including SME owners and executives in the city of Port Harcourt Nigeria	<p>This study found that SMEs' ERP adoption was more driven by Technological factors such as infrastructure quality, technical know-how, perceived capability and compatibility and value and security than by organisational and environmental factors</p>

Authors	Technology Innovation Adoption	Methods	Data Collection and Context	TOE factor findings
Awiagah et al. (2016)	SMEs' e-commerce adoption	Structural equation modelling was employed for data analysis	Structural equation modelling technique using SPLS 2.0 used to test the hypothesis for e-commerce understating among 154 SMEs in Ghana	<p>Technological: Relative advantage, perceived credibility</p> <p>Organisational: Management support and self-efficacy, perceived behavioural control, attitude, subjective norm</p> <p>Environmental: Government support, enabling conditions and competitors' pressure</p>
Chatzoglou and Chatzoudes (2016)	SMEs' e-commerce adoption	Various techniques were used to test the hypothesis	The structured questionnaire used to examine TOE factors and distributed to 600 SMEs' in Greece	<p>Technological: ICT infrastructure quality</p> <p>Organisational: Firm size and scope and internet usage skills, adoption cost</p> <p>Environmental: Competitors pressure</p> <p>Individual: owner-manager knowledge</p>
Sun et al. (2018)	Big data adoption	Content analysis used to address the research questions	Target only mainstream academic and industrial journals from 2009–2015	<p>Technological: Innovation characteristics, adoption cost, complexity, compatibility, trialability and observability</p> <p>Organisational: Human/technology resources, management support, e-readiness, ICT/organisation size/structure</p> <p>Environmental: Security/privacy issues, trading partners, customer e-readiness, regulatory environment, lack of support and trust</p>

Appendix C: Interview Protocol and Guide

Open Ended Questionnaire used for face to face and telephonic interviews

<u>Research Questions (RQ)</u>	<u>Rationale for RQ 1</u>	<u>Source (RQ 1) Adopted from</u>
<p style="text-align: center;"><i>Part 1: Background and structural information</i></p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p style="text-align: center;">RQ 1: What is the current situation of SMEs' e-commerce adoption in Pakistan?</p> </div> <p>1. What is the history of your organisation? Detail introduction of the organisation includes total number of employees, age of the company, size of the company (medium or small) and location of the company (rural or urban).</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>2. Explain the business areas or products your organisation offers to the public or companies by using Business to Business-B2B or Business to Commerce-B2C Index? Overall business process of the organisation.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>3. To what extent does your organisation adopt any Information and Communication Technology-ICTs hardware & software tools to run the business process? For example, the Internet, personal computers, email, websites, online marketing/advertising software.</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Small firms are very slow in adopting innovative technologies such as e-commerce in the region of South Asian economies. Indeed, slowing down the pace of innovation adoption in the structure of the organisation is a crucial issue to consider. (RQ 1) discusses the current nature and characteristics of SMEs' e-commerce activities in Pakistan to understand the overall structure of these businesses fully.</p>	<ul style="list-style-type: none"> • Zafar, Ishaque, & Javaid (2014) • Hyder and Lussier (2016) • Chen et al., (2013) • Kozma & Vota (2014) • Laudon & Laudon (2014) • Lechman & Kaur (2016)

<p>4. How your organisation adopt & implements ICT tools, explain the category of Internet that implements in your organisation to run the business process? For example, high-speed Internet (Fibre optics), broadband, dial-up, wireless, cable Etc to identify the quality of infrastructure.</p> <p>_____</p> <p>_____</p> <p>_____</p>		<ul style="list-style-type: none"> • Molla & Licker (2005) • Touray et al., (2013)
<p>5. Explain the reason why your organisation implements ICT and EC tools in the business process?</p> <p>_____</p> <p>_____</p> <p>_____</p>		<ul style="list-style-type: none"> • Al-Qirim (2007) • Chen et al. (2013)
<p>6. What is the procedure by which your organisation acquires EC resources and knowledge to conduct the business? Explain the EC process in detail. Start-up procedure of the EC installation in the business.</p> <p>_____</p> <p>_____</p> <p>_____</p>		<ul style="list-style-type: none"> • Franco & Garcia (2018) • Ghandour, (2015)
<p>7. To what extent is your organisation obtaining benefits after implementing the above ICT tools in your business process? For example, increase sales, more customers, positive feedback, more orders.</p> <p>_____</p> <p>_____</p> <p>_____</p>		<ul style="list-style-type: none"> • Ndayizigam iye & Khoase, (2018) • Teo & Pian, (2004)
<p>8. Has your organisation adopted and implemented any ICT strategies provided by the government agencies-Small and Medium-sized Business Development Authority-SMEDA to improve the overall structure of SMEs' in Pakistan and your organisation as well?</p> <p>_____</p> <p>_____</p> <p>_____</p>		<ul style="list-style-type: none"> • Touray et al., (2013) • Wielicki & Arendt (2010)

<p><i>Part 2: Understanding the Internal and External issues of the organisation & management about the adoption and usage of ICT and electronic commerce:</i></p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p align="center">RQ 2: What are the different e-commerce adoption factors in the SMEs of Pakistan?</p> </div> <p>9. What are the different internal/external obstacles and challenges faced by your organisation while adopting and implementing of electronic commerce in your business process?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>10. Who is the decision maker of operational planning and implementation of ICT and EC applications within your organisation? For example, Owner manager or other managerial employees. <i>(No limitation or restriction to suggest the name or position)</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>11. Who handles adopting and managing the ICT and electronic commerce tools within your organisation? For example, Manager, IT Officer, Software developer etc.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>12. What kind of managerial and IT skills of the managers are required to run the electronic commerce applications efficiently in your organisation? For example, Education background, ICT knowledge, Experience etc.</p>	<p><u>Rationale for RQ 2</u></p> <p>There are many adoption barriers to e-commerce within the SMEs. In the literature, the barriers within SMEs will be identified using the analysis of the different technologies available to them such as their hardware and software tools; overall internal physical ICT environment; and perhaps most importantly, the ICT awareness and knowledge of e-commerce among owner-managers and management.</p>	<p><u>Source (RQ 2) Adopted from</u></p> <ul style="list-style-type: none"> • Kapuruban dara and Lawson (2008) • Tornatzky and Fleischer (1990) • Barney (1991) • Simpson and Docherty (2004) • Ghobakhloo and Tang (2013) • Al-Qirim (2007) • Altayyar & Beaumont-Kerridge (2016) • Ghandour (2015)
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<p>_____</p> <p>_____</p> <p>_____</p> <p>13. Could you please explain the way in which e-commerce has been adopted within your organisation with the support of leadership? When it was fully operated, procedure and the reason of adoption.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>14. How does your organisation see the role of electronic commerce in the future for its business operations?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><i>Part 3: Support of Local Business Institutions & GOP:</i></p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>RQ 3: Analysis of the local legal and business environment of Pakistan to assist SMEs</p> </div> <p>15. Explain the various kinds of support that your organisation received(s) from the local business organisation(s). For example, SMEDA or any government agency.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>16. Explain the different benefits that your organisation has implemented in the business process after the support received from local business-SMEDA or GOP?</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p><u>Rationale for RQ 3</u></p> <p>In the literature, it was found that government initiatives play an important role in e-commerce adoption, as they can potentially contribute positively to the development of e-commerce or – more negatively – create barriers. However, some problems cannot be solved without the support of local authorities and their national institutes. There (RQ 3) analysis the local and legal business environment of Pakistan to provide the suggestions and make strategies for SMEs.</p>	<ul style="list-style-type: none"> • Oliveira et al., (2015) • Rahayu & Day (2015) <u>(RQ 3) Adopted from</u> • Al-Somali et al., (2015) • Awiagah et al., (2016) • Lawrence & Tar, (2010) • Martinsons, (2008) • Nazir & Zhu, (2018)
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<p>17. Does your organisation use the electronic commerce tool efficiently within your business process? If No, please explain the reasons.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>18. Do you think that your organisation is satisfied after the adoption of EC tool of ICT within the structure of your business process? If not, why not?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Further Information (Please provide other necessary information that you consider as some major factors that stop your organisation while adopting and implementing electronic commerce and ICT applications)</p>		<ul style="list-style-type: none"> • Seyal et al., (2004) • Yaseen, Dingley, and Adams (2015)
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Appendix D: Request to Participate in the Survey

PhD Research Title

Factors Affecting E-commerce Adoption among SMEs.

A Case Study Investigation of a Developing Economy – Pakistan

The aim of this study is to explore the factors that influence on electronic commerce (ecommerce) adoption in small and medium-sized business (SMEs) in the context of Pakistan. The three primary objectives of the study are:

1. To study the overall characteristics and situation of SMEs.
2. To investigate various contextual adoption factors of e-commerce for the successful development of innovative technologies such as e-commerce in SMEs.
3. What strategies should be put in place to develop e-commerce adoption practices in the SMEs of Pakistan with the help of local and provisional government(s), local business institutes and awarding agencies.

The study takes a qualitative approach to ask for original and accurate views on the context of the adoption of electronic commerce between SMEs in Pakistan. The study is conducted by the undersigned as a partial requirement for a Ph.D. in Business Studies from the Teesside Business School, University of Teesside, United Kingdom. The data and results collected in this study will be used only for academic research and will not be disclosed to third parties for any reason.

Therefore, you are asked to provide the truth about the circumstances surrounding the adoption of e-commerce in your organisation. You are also free to refuse to answer some or all the questions that will be raised without worrying about why. You are also free to express yourself and present your answers in the language that makes you more comfortable. A researcher will help translate the local (Urdu) language of the English language (if necessary please contact the researcher directly).

If you agree to participate in this study, a consent form will also be signed with a data protection form. The survey method consists of two phases: 1. If you are interested in giving your answer online (email) instead of providing a face-to-face interview, I can send you a questionnaire on your valid email address. All I need is your email address where I can send you a questionnaire and will only take 30-45 minutes to complete it. 2. Face to face and a telephone interview is another option if you are not willing to provide the answers by email, (we can arrange a formal meeting) to your office or at any other place for the investigation or we can also conduct a telephone interview.

Be informed that I must follow the code of ethics of my university and promise you complete anonymity and confidentiality. All responses will only be used for research purposes, and the names of participants and companies will not be identified in any reported results.

I am looking forward to hearing what option is right for you, so that I can act accordingly. Do not hesitate to contact me if you have any questions.

Thanks, and Kind Regards,

Muhammad Arsalan NAZIR

PhD Student

Teesside Business School

1st Floor, Clarendon Building

Teesside University

Middlesbrough

United Kingdom TS1 3BX

Email: m.nazir@tees.ac.uk

Appendix E: Participant Information Sheet

Study Title: PhD-Business Studies

Researcher: Muhammad Arsalan NAZIR-13300726

School: Teesside business school, University of Teesside, UK

Background to the study: Adoption of e-commerce in SMEs is a critical area to conduct research, especially in developing countries. Many developed countries already adopted e-commerce strategies in their organisations including Small and Large business. But due to lack of awareness, IT difficulties and the excessive cost of ICT infrastructure in developing country such as Pakistan, still there is a need to conduct empirical research in the context of Pakistan within SMEs to find out various factors which are stopping business not to adopt e-commerce methods in their business process. This research will focus on adoption of e-commerce within the SMEs of Pakistan and try to find out several factors and obstacles to improving the business structure of the business.

What is the purpose of the study?: The primary aim of this study is to increase the body of knowledge about the process of adoption of electronic commerce by a primary empirical focus on SMEs in the context of Pakistan. In Pakistan, there are approx. 4.1 million economic institutions out of which Approx. 99 percent are belongs to SMEs (SMEDA, 2014). The aim of this study is to investigate the factors and obstacles that could influence SMEs' adoption of electronic commerce. To reach this objective in this study, I examined the previous studies to identify the gap in the literature concerning the adoption of, and obstacles to, electronic commerce among SMEs and different theories.

Why have I been chosen?: The reason for choosing you is to get responses from those members who are working the SME sector of Pakistan and have some knowledge of Information and Communication Technology-ICT, e-commerce, and SME. With the help of your management and entrepreneurship skills, it will be easy for me to conduct this study after getting responses from your side. It is critical for me and for my research to represent the views of everyone living in Pakistan who are working in a business sector. Whether you are old or young, poor or rich, I value your opinion.

Who is responsible for the study?: A PhD student (Muhammad Arsalan NAZIR), of Teesside University, the UK, who is conducting this research, is responsible for this study. He will carry out this research with the help of supervisors and responsible for the data collection and analysis. Data will only be used for academic research.

Are there any disadvantages in taking part in this study?: There are no disadvantages in taking part in this study because information of data collection will only be used for academic research.

What are the possible risks of taking part?: There are no risks involved in this research.

What are the possible benefits of taking part?: Not everyone who participates in a research study will benefit personally. Sometimes, your participation in the research study will be of benefit to society by helping researchers to learn more about a certain SME issues or condition of your business. In some studies, however, you may personally benefit from the results of the research so you can implement the recommendations in your organisation.

Confidentiality - who will know I am taking part in the study?: All information which is collected about you during the research will be kept strictly confidential and only be used for the academic PhD-Research. Only researcher and the supervisor of my research area will know about your participation and access the data for analysis.

Who has approved the study?: Teesside University Research Ethics Committee has approved this study.

Researcher contact details: (Name and university email address):

Muhammad Arsalan NAZIR
Teesside University Business School
1st Floor, Clarendon Building
Teesside University
Middlesbrough
United Kingdom
TS1 3BX

Email: *m.nazir@tees.ac.uk*

Appendix F: Informed Consent Form

Participant Male/Female:

Designation:

Education Level:

Thesis Title: The Adoption of, and Obstacles to, E-commerce in SMEs; A qualitative study of an emerging economy-Pakistan.

Researcher name and university email address: Muhammad Arsalan
Nazir m.nazir@tees.ac.uk

Research Supervisor: Dr. Xiaoxian Zhu, Dr. Jonathan M. Scott & Professor Mark Davies
(former supervisors)

1. I confirm that:

- I am willing to take part in the above research project as a volunteer participant;
- I have had my attention drawn to the guidelines for research involving human participants;
- Any questions I had about the study, or my participation in it, have been answered to my satisfaction.

2. I understand that:

- The researcher will explain the nature and purpose of each data collection session;
- I am free to withdraw from the study at any time without the need to give reason;
- I agree to my data being stored and used for the purpose of publication of the study;
- In accordance with the 1998 Data Protection Act my data will be anonymised and stored securely.

If you wish to withdraw from the study, please contact the researcher via the email address above quoting the name.

SIGNATURE (participant/parent) _____

SIGNATURE (researcher) _____

Appendix G: Teesside University Ethical Clearance Letter

Professor Paul Crawshaw
Dean

School of Social Sciences, Business & Law
Teesside University, Middlesbrough
Tees Valley TS1 3BX UK

T: +44 (0)1642 342851
tees.ac.uk



7 July 2016

Dr Jonathan Scott

Dear Jonathan

School Research Ethics Committee

Project title: The adoption of and obstacles to E-commerce in SME's : an empirical study of Pakistan

Researcher(s) Names: Muhammad Arsalar Nazir

The above proposal has received ethical clearance and the project may proceed.

If the research should change or extend beyond the indicated dates, the researcher(s) must report the nature of the proposed changes and the revised end date to the Chair/Secretary of the Research Ethics Committee.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M. A. Tayler'.

Dr Martin Tayler
Chair
Research Ethics Committee
School of Social Sciences and Law

VAT REG NO. GB 686 4809 81

